

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

DESIGN-BUILD PACKAGE

Final RFP

VOID FOR BIDDING

DATE AND TIME OF TECHNICAL AND PRICE PROPOSAL SUBMISSION: **AUGUST 29, 2003 AT 4:00 PM**

DATE AND TIME OF PRICE PROPOSAL OPENING: **SEPTEMBER 16, 2003 AT 2:00 PM**

CONTRACT ID No.: C200725

KILOMETERS: 3.379

WBS ELEMENT No. 34494.3.1

COUNTY: WAKE

ROUTE No: East Wake Expressway

T.I.P. No : R-2641

LOCATION: EAST WAKE EXPRESSWAY FROM PROPOSED US 64 BYPASS TO US 64 EAST

TYPE OF WORK: DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK
CONTAINED IN THE DESIGN-BUILD PACKAGE

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA.

5% BID BOND OR BID DEPOSIT REQUIRED

PROPOSAL FORM FOR THE CONSTRUCTION OF CONTRACT NO. C 200725

IN WAKE COUNTY, NORTH CAROLINA

Date _____ 20__

DEPARTMENT OF TRANSPORTATION,

RALEIGH, NORTH CAROLINA

The Design-Builder has carefully examined the location of the proposed work to be known as Contract No. C 200725 ; has carefully examined the preliminary plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the Design-Build Package, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned Design-Builder agrees to bound upon his execution of the proposal and subsequent award to him by the Board of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen calendar days after the written notice of award is received by him. The undersigned Design-Builder further agrees to provide all design services and all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with the 2002 Standard Specifications for Roads and Structures by the dates(s) specified in the Design-Build Package and in accordance with the requirements of the Engineer, and at the lump sum price(s) for the various items given on the sheets contained herein.

The Design-Builder shall provide a Technical Proposal, a Price Proposal and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to design construct and complete State Highway Contract No. C 200725 in WAKE county, for the lump sum price(s) bid by the Design-Builder in his Price Proposal and according to the proposal, plans, and specifications prepared by said Department and/or Design-Builder, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

The published volume entitled "North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, JANUARY 2002 with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the Construction and work included in this contract is to be done in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Engineer.

If the proposal is accepted and the award is made, the contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except over the signature of the said Contract Officer.

Accompanying this Proposal is a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Design-Builder shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 calendar days after the written notice of award is received by him, as provided in the Standard Specifications; otherwise said deposit will be returned to the Design-Builder.

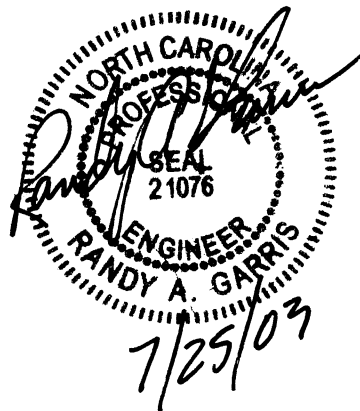


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Signature

PROJECT SPECIAL PROVISIONS

CONTRACT TIME AND LIQUIDATED DAMAGES:

7-1-95

The date of availability for this contract is **November 3, 2003** except that the environmental issues must first be resolved as required in the "Environmental Permits Scope of Work" contained in the scope of work section of this package. For this contract, the date of availability is defined as the date the Contractor may begin performing the operations necessary to obtain any and all permits needed prior to beginning construction operations. No construction operations may begin until all permits have been received.

The completion date for this contract is the date proposed by the Design Builder who is awarded the project. The completion date proposed shall not be later than **October 1, 2006**.

In determining this October 1, 2006 latest completion date the Department will allow to be proposed, it is estimated that the permit acquisition time will be 270 consecutive calendar days after the date of availability, and that the Design-Builder would begin his controlling construction operations on the 271st day. It shall be incumbent on the Design-Builder to propose acceptable environmental or established approaches to securing the permits as defined in the Project Special Provision entitled "Environmental Permits Scope of Work", included elsewhere in the RFP. Should the Design Builder acquire the permits in less than 270 days, then the additional time may be utilized by the Design Builder for construction operations without a corresponding reduction in the total contract time.

When observation periods are required by the special provisions, they are not a part of the work to be completed by the completion date and/or intermediate contract times. Should an observation period extend beyond the final completion date, the acceptable completion of the observation period shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Ten Thousand Dollars** (\$10,000.00) per calendar day. As an exception to this amount, where the contract has been determined to be substantially complete as defined in Section 105-18 contained elsewhere in this package, the liquidated damages will be reduced to **Two Thousand Dollars** (\$2,000.00) per calendar day.

Where the Design Builder who is awarded the contract has proposed a completion date for the contract as required above, but also has proposed an earlier date for substantial completion, then both of these proposed dates will become contract requirements. Liquidated damages of **Ten Thousand Dollars** (\$10,000.00) per calendar day will be applicable to the early date for substantial completion proposed by the Design Builder. Liquidated damages of **Two Thousand Dollars** (\$2,000.00) per calendar day will be applicable to the final completion date proposed by the Design Builder.

PROGRESS SCHEDULE:

The Design-Builder shall be responsible for planning, scheduling and reporting the progress of the work to ensure timely completion of the contract.

The Design-Builder shall submit a schedule in accordance with the following:

CRITICAL PATH METHOD PROJECT SCHEDULE (CPM):**DESCRIPTION:**

The work of this provision consists of the Design-Builder planning, scheduling, designing, and constructing this project using a Critical Path Method Project Schedule (CPM). Use the CPM for coordinating and monitoring all the work specified in this contract including all activities of subcontractors, vendors, suppliers, utilities, railroads, NCDOT, and all other parties associated with the design or construction of this project. The work covered by this section includes but is not limited to **permit modification processing time**, submittals, major procurement, delivery, construction activities, submitting an initial CPM, and providing monthly updates to the CPM. The schedule shall have considered the time requirement for ordering articles of special manufacture to meet specific requirements of the work and for any inspection requirements of the various sections of the specifications, such as Section 1072 when structural steel fabrication inspection is required. Make sure that all activities quantified in the contract are included in the CPM.

MATERIALS:

Use software for the CPM that generates files that are compatible with Primavera Project Planner.

REQUIREMENTS:**(A) Float**

Float is defined as the amount of time between when an activity “can start or finish” (early start or early finish) and when an activity “must start or finish” (late start or late finish). Float is a shared commodity for the use of NCDOT and/or the Design-Builder and is not for the exclusive use or benefit of either party. Both parties have the full use of the float until it is depleted.

(B) Design-Builder’s Scheduling Representative

Designate an individual from the Design-Builder’s organization, prior to submission of the Initial Critical Path Method Schedule, who will be the Design-Builder’s authorized representative responsible for the development, updating, and revising of the Design-Builder’s CPM schedule. Have the scheduling representative represent the Design-Builder in all matters regarding the schedule and attend all schedule related meetings. The scheduling representative must be skilled in the application of computer network schedules on construction projects of the magnitude and complexity of this project.

(C) Initial Critical Path Method Schedule (ICPM)

Within thirty (30) calendar days of receiving the Notice of Award, submit an ICPM for approval. Within twenty-one (21) calendar days of receipt of the Design-Builder’s ICPM, the Engineer will complete the review of the ICPM. If required, a Joint Review Conference will be convened at which the Engineer and the Design-Builder will make any necessary corrections or adjustments to the ICPM. If a revision to the ICPM is necessary due to the Engineer’s review or a Joint Review Conference, submit a revised ICPM within seven (7) calendar days after the date of the

Joint Review Conference. The Engineer will respond to the submitted revised ICPM with seven (7) calendar days of receipt.

Once the ICPM has been accepted, it becomes the CPM of record. Acceptance of the ICPM in no way attests to the validity of the assumptions, logic constraints, dependency relationships, resource allocations, manpower and equipment, or any other aspect of the ICPM. The Design-Builder is and will remain solely responsible for the planning and execution of work in order to meet project milestones or contract completion dates.

Include the following in the ICPM submittal:

- (1) A time scale diagram containing the following:
 - (a) an acceptable scale and format
 - (b) all activities clearly labeled
 - (c) all activity identification clearly shown for each activity
 - (d) all relationships between activities shown
- (2) Tabular reports containing the following:
 - (a) Precedence diagrams with activities listed and lead and lag times shown
 - (b) Activity duration shown. All activities must have a duration of not more than 20 days unless otherwise approved. Divide activities with longer durations into subgroups of activities not exceeding 20 working days in duration. Indicate logical start and end points (e.g. stationing, staging, etc.) for each subgroup.
 - (c) Activity descriptions shown
 - (d) Early start and finish dates shown
 - (e) Late start and finish dates shown
 - (f) Status (critical or not) shown
 - (g) Total float shown
 - (h) Responsibility (i.e. Design-Builder, specific subDesign-Builder, specific supplier, NCDOT, etc.) shown
- (3) Written narrative complying with the requirements listed below
- (4) Data disk containing all of the information in the ICPM. The disk must be compatible with Primavera Project Planner software.

(D) Written Narrative

Provide a written narrative that explains the sequence of work, the critical path, interim completion dates, project phasing, non-work days or periods, maintenance of traffic, and labor and equipment resources. In addition, explain in the written narrative how the Design-Builder has provided for permit requirements, environmental requirements, coordination with other public contractors, milestone dates, other entities, coordination with utility companies, special non-work days or periods, and weather in the ICPM.

Provide the following information for each activity listed in the ICPM:

- (1) Estimated start and completion date
- (2) Description of work to be done including the type and quantity of equipment, labor, and material to be used

- (3) Description of the location on the project where activity occurs
- (4) Description of planned production rates (e.g. cubic yards (cubic meters) of excavation per day/week)
- (5) Description of work days per week, holidays, number of shifts per day, and number of hours per shift
- (6) Description of expected and critical delivery dates for equipment or material that can affect timely completion of the project
- (7) Identify the vendor, supplier, or subDesign-Builder to perform the activity. State all assumptions made in the scheduling of the subDesign-Builder's or supplier's work.
- (8) Utilize the written narrative to explain the following:
 - (a) relationship between activities not obviously identified
 - (b) equipment usage and limitation
 - (c) manpower usage and limitations
 - (d) use of additional shifts and/or overtime
 - (e) activity codes, abbreviations, and activity identification system
 - (f) all calendars used in the CPM
 - (g) constraints (date or time constraints)
 - (h) all abbreviations used in the ICPM
 - (i) scheduling of weather and/or temperature sensitive activities
 - (j) describe critical completion dates for maintaining the design and construction schedule

(E) Schedule Updates

Submit an update of the CPM of record monthly and at the preconstruction conference. The data date for the CPM update will be seven days prior to the cut-off date for the monthly partial payment. Submit the update within seven calendar days of the data date. Failure to submit the CPM update may result in the Engineer withholding partial payments. Upon acceptance, the monthly update will become the CPM of record for the time period between its data date and the next approved update or revision.

Include in the monthly updates activity data as specified in (1) through (4) under (C) Initial Critical Path Method Schedule using actual activity start dates. Use the monthly update to describe the project progress to date. Include in the written narration a description of the work performed during the update period, the current critical path, any delays or disruptions experienced during the update period, any change in manpower or equipment, and any potential delays or disruptions.

(F) Revisions to the Schedule of Record

A revision to the schedule of record is defined as one or more of the following:

- (1) a change in the original duration of an activity
- (2) a change in the logic of the schedule
- (3) a change to resources
- (4) a change to any Actual date, previously established
- (5) the deletion or addition of an activity
- (6) a change to, addition of, or deletion of a constraint (date or time constraint)
- (7) a change to, addition of, or deletion of an activity code
- (8) a change to an activity description

(9) any change other than updating an activity

Whenever a revision is proposed for any of the above reasons, contact the Engineer and verbally discuss the revision. If the revision is considered minor, the Engineer may allow the revision to be included in the next update of the CPM. If the revision is not considered minor, submit for approval the proposed revision with the same requirements as the ICPM including the following:

- an updated CPM including the proposed revision
- a written narrative that describes the reason for the revision, the resulting critical path, and all particulars of the revision including but not limited to:
 - (1) changes in the method or manner of the work
 - (2) changes in the specifications
 - (3) changes in resources
 - (4) extra work
 - (5) addition or deletion of work
 - (6) increased or decreased quantities
 - (7) defective work
 - (8) acceleration of work

Submitted revisions will be responded to within fourteen (14) calendar days after receipt. If the Design-Builder is required to resubmit the proposed revision, do so within seven (7) calendar days after receipt of the Engineer's comments. The Engineer reserves the right to reject any proposed revision which adversely affects the NCDOT, utilities, or other interested parties.

No measurement or direct payment will be made for Design-Builder costs relating to preparation and submission of schedules and reports and revisions thereto, the cost being considered as included in the lump sum Design-Build price

Acceptance of the Design-Builder's schedules by the Engineer is not to be construed as relieving the Design-Builder of its obligation to complete the work within the contract time; or as granting, rejecting, or in any other way acting on the Design-Builder's requests for adjustments to the date for completing contract work, or claims for additional compensation. Such requests shall be processed in strict compliance with other relevant provisions of the contract.

PARTNERING:

7-1-95

As a part of its quality management program, the North Carolina Department of Transportation intends to encourage the formation of a cohesive relationship with the Design-Builder and its principal subContractors and suppliers. This relationship will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are safe, effective, and efficient contract performance; and completion within budget, on schedule, and in accordance with the plans and specifications.

This relationship will be bilateral in makeup and participation will be totally voluntary. The cost associated with effectuating this relationship will be agreed to by both parties and shall be shared equally.

To implement this initiative prior to starting work in accordance with the requirements of Section 108 of the Standard Specifications and prior to the preconstruction conference, the Design-Builder's management personnel and NCDOT's Construction Engineer will initiate a partnering development seminar/team building workshop. Project personnel working with the assistance of the Construction Unit will make arrangements to determine attendees at the workshop, agenda of the workshop, duration, and location. Persons required to be in attendance will be the NCDOT Resident Engineer, the NCDOT Division Construction Engineer, and key project personnel; the Design-Builder's senior management personnel, the Design-Builder's on-site project manager, and key project supervisory personnel for both the prime Design-Builder, the CEI Firm and principal subDesign-Builders and suppliers. The project design engineers, FHWA, and key local government personnel will also be invited to attend as necessary.

Follow-up workshops may be held periodically throughout the duration of the contract as agreed by the Design-Builder and the North Carolina Department of Transportation.

The establishment of the partnering charter on a project will not change the legal relationship to the contract nor relieve either party from any of the terms of the contract.

D1G16

BID DOCUMENTATION:

General:

The successful Proposer (Design-Builder) shall submit the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation used to prepare the Price Proposal for this contract to the Department. Such documentation shall be placed in escrow with a banking institution or other bonded document storage facility selected by the Department and preserved by that institution or facility as specified in the following sections of this provision.

Bid Documentation:

The term "bid documentation" as used in this provision means all written information, working papers, computer printouts and diskettes, charts, and all other data compilations which contain or reflect information, data, and calculations used by the Proposer in the preparation of the Price Proposal. The term "bid documentation" includes, but is not limited to, Design-Builder equipment rates, Design-Builder overhead rates, labor rates, efficiency or productivity factors, arithmetical calculations, and quotations from subcontractors and material suppliers to the extent that such rates and quotations were used by the Proposer in formulating and determining the bid. The term "bid documentation" also includes any manuals which are standard to the industry used by the Proposer in determining the bid. Such manuals may be included in the bid documentation by reference. Such reference shall include the name and date of the publication and the publisher. The term does not include bid documents provided by the Department for use by the Proposer in bidding on this project.

Submittal of Bid Documentation:

A representative of the Proposer shall deliver the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation to the Department, in a container

suitable for sealing, within ten (10) calendar days after the notice of award is received by him. Bid documentation will be considered a certified copy if the Proposer includes a letter to the Department from a chief officer of the company stating that the enclosed documentation is an EXACT copy of the original documentation. The letter must be signed by a chief officer of the company, have the person's name and title typed below the signature, and the signature MUST be notarized at the bottom of the letter. The Department will not execute the contract until the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation has been received by the Department. The container shall be clearly marked "Bid Documentation" and shall also show on the face of the container the Proposer's name, Proposer's address, the date of submittal, the Project Number, and the County.

Affidavit:

In addition to the bid documentation, an affidavit signed under oath by an individual authorized by the Proposer to execute the bid shall be included. The affidavit shall list each bid document with sufficient specificity so a comparison may be made between the list and the bid documentation to ensure that all of the bid documentation listed in the affidavit has been enclosed. The affidavit shall attest that the affiant has personally examined the bid documentation, that the affidavit lists all of the documents used by the Proposer to determine the bid for this project, and that all such bid documentation has been included.

Verification:

Upon delivery of the bid documentation, the Department's Contract Officer and the Proposer's representative will verify the accuracy and completeness of the bid documentation compared to the affidavit. Should a discrepancy exist, the Proposer's representative shall immediately furnish the Department's Contract Officer with any other needed bid documentation. The Department's Contract Officer upon determining that the bid documentation is complete will, in the presence of the Proposer's representative, immediately place the complete bid documentation and affidavit in the container and seal it. Both parties will deliver the sealed container to a banking institution or other bonded document storage facility selected by the Department for placement in a safety deposit box, vault, or other secure accommodation.

Duration and Use:

The bid documentation and affidavit shall remain in escrow until sixty (60) calendar days from the time the Design-Builder receives the final estimate; or until such time as the Design-Builder gives written notice of intent to file a claim, files a written claim, files a written and verified claim, or initiates litigation against the Department related to the contract; or until authorized in writing by the Design-Builder. Upon the giving of written notice of intent to file a claim, filing a written claim, filing a written and verified claim, or the initiation of litigation by the Design-Builder against the Department, or receipt of a letter from the Design-Builder authorizing release, the Department may obtain the release and custody of the bid documentation. If the bid documentation remains in escrow sixty (60) calendar days after the time the Design-Builder receives the final estimate and the Design-Builder has not filed a written claim, filed a written and verified claim, or has not initiated litigation against the Department related to the contract, the Department shall instruct the banking institution or other bonded document storage facility to release the sealed container to the Design-Builder.

The Proposer certifies and agrees that the sealed container placed in escrow contains all of the bid documentation used to determine the bid and that no other bid documentation shall be relevant or material in litigation over claims brought by the Design-Builder arising out of this contract.

Failure to Provide Bid Documentation:

The Proposer's failure to provide the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation within ten (10) calendar days after the notice of award is received by him may be just cause for rescinding the award of the contract and may result in the removal of the Proposer from the Department's list of qualified Proposers for a period up to 180 days. Award may then be made to the next lowest responsible Proposer or the work may be readvertised and constructed under the contract or otherwise, as the Board of Transportation may decide.

Escrow Agreement:

The Proposer will be required to sign an Escrow Agreement within ten (10) calendar days after the notice of award is received by him. A copy of this Escrow Agreement document will be mailed to the Proposer with the notice of award. The Proposer and Department will sign the Escrow Agreement at the time that the bid documentation is delivered to a Banking Institution or other facility as outlined above. The Proposer's failure to sign the Escrow Agreement at the time the bid documentation is delivered may be just cause for rescinding the award of the contract and may result in the removal of the Proposer from the Department's list of qualified Proposers for a period up to 180 days. Award may then be made to the next lowest responsible Proposer or the work may be readvertised and constructed under the contract or otherwise, as the Board of Transportation may decide.

Confidentiality of Bid Documentation:

The bid documentation and affidavit in escrow are, and will remain, the property of the Proposer. The Department has no interest in, or right to, the bid documentation and affidavit other than to verify the contents and legibility of the bid documentation unless the Design-Builder gives written notice of intent to file a claim, files a written claim, files a written and verified claim, or initiates litigation against the Department. In the event of such written notice of intent to file a claim, filing of a written claim, filing a written and verified claim, or initiation of litigation against the Department, or receipt of a letter from the Design-Builder authorizing release, the bid documentation and affidavit may become the property of the Department for use in considering any claim or in litigation as the Department may deem appropriate.

Any portion or portions of the bid documentation designated by the Proposer as a "trade secret" at the time the bid documentation is delivered to the Department's Contract Officer shall be protected from disclosure as provided by G.S. 132-1.2.

Cost and Escrow Instructions:

The cost of the escrow will be borne by the Department. The Department will provide escrow instructions to the banking institution or other bonded document storage facility consistent with this provision.

Payment:

There will be no separate payment for all costs of compilation of the data, container, or verification of the bid documentation. Payment at the lump sum price for the Design-Build project will be full compensation for all such costs.

**EXECUTION OF SIGNATURE SHEETS AND DEBARMENT
CERTIFICATION:****9-18-01**

The Proposer's attention is directed to the various sheets in the Design-Build Package which are to be signed by the Proposer. A list of these sheets is shown below. The signature sheets are located behind the item sheets in the Design-Build Package. The bid bond is inserted in the Design-Build Package.

1. Applicable Signature Sheets: 1, 2, 3, 4, 5 or 6 (Bid)
2. Bid Bond (Proposal Insert)

The Proposer shall certify his and to the best of his knowledge all subcontractors, material suppliers and vendors utilized herein current status concerning suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency, in accordance with the "Debarment Certification" located behind the signature sheets in the Design-Build Packages. Execution of the bid signature sheets in conjunction with any applicable statements concerning exceptions, when such statements have been made on the "Debarment Certification", constitutes the Proposer's certification of "status" under penalty of perjury under the laws of the United States.

SP1G52

SUBMISSION OF DESIGN-BUILD PROPOSALS:**6-16-92**

The Proposer's attention is directed to the fact that each Proposer's Design-Build Proposal shall comply with the following requirements in order for that Design-Build Proposal to be responsive and considered for award.

1. The Proposer shall be prequalified with the Department prior to submitting a Design-Build Proposal.
2. The Proposer shall deliver the Design-Build Proposal to the place, and prior to the time, indicated in the Design-Build Package.
3. The Design-Build Proposal documents shall be signed by an authorized employee of the Proposer.
4. The Design-Build Proposal shall be accompanied by Bid surety in the form of a Bid bond or Bid deposit.
5. If Disadvantaged Business Enterprises (DBE) goals are established for this contract, the Proposer shall complete the form Listing of DBE Subcontractors contained elsewhere in

this proposal in accordance with the Project Special Provision entitled Disadvantaged Business Enterprises.

In addition to the above requirements, failure to comply with any of the requirements of Articles 102-8, 102-9, 102-10 or 102-11 of the specifications may result in a Design-Build Proposal being rejected. SP1G55

SCHEDULE OF ESTIMATED COMPLETION PROGRESS: **7-16-90**

The Design-Builder's attention is directed to the Standard Special Provision entitled "Availability Of Funds Termination Of Contracts" included elsewhere in this Design-Build Package. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

<u>Fiscal Year</u>	<u>Progress (Dollar Value)</u>
2004 (7/1/03 - 6/30/04)	47% of Total Amount Bid
2005 (7/1/04 - 6/30/05)	45% of Total Amount Bid
2006 (7/1/05 - 6/30/06)	8% of Total Amount Bid

The Design-Builder shall also furnish his own progress schedule in accordance with Article 108-2. Any acceleration of the progress as shown by the Design-Builder's progress schedule over the progress as shown above shall be subject to the approval of the Engineer. SP1G58

MINORITY AND WOMEN BUSINESS: **7-17-01_R**

POLICY

It is the policy of the North Carolina Department of Transportation that minority and women businesses shall have the maximum opportunity to participate in the performance of contracts financed by Non-Federal Funds.

The Contractor is also encouraged to give every opportunity to allow MBE/WBE participation in Supplemental Agreements.

OBLIGATION

The Contractor and any subsequent Subcontractor shall ensure that minority and women businesses have the maximum opportunity to participate in the performance of the work included in this contract. The Contractor and any subsequent Subcontractor shall take all necessary and reasonable steps to ensure that minority and women businesses have the maximum opportunity to compete for and perform a portion of the work included in this contract and shall not discriminate on the basis of race, color, national origin or sex. Failure on the part of the Contractor to carry out the requirements set forth herein shall constitute a breach of contract and after proper notification, may result in award disqualification, termination of the contract, disqualification from bidding, or other appropriate remedy.

GOALS

Pursuant to the requirements of North Carolina General Statute 136-28.4, the following goals for participation are established for this contract:

Minority Business Enterprises	<u>10%</u>
Women Business Enterprises	<u>5%</u>

The Contractor shall exercise all necessary and reasonable steps to ensure that Minority Businesses (MB) and Women Businesses (WB) participate in at least the percents of the contract as set forth above as goals for this contract.

LISTING OF MB AND WB SUBCONTRACTORS

All bidders, at the time the bid proposal is submitted, must also submit a listing of MB and WB participation on the appropriate form (or facsimile thereof) contained elsewhere in this proposal in order for the bid to be considered responsive. Bidders must indicate the total dollar value of MB and WB participation of the contract. In the event the bidder has no MB and WB participation, he is still required to indicate this on the forms by entering the word or number zero. Blank forms will not be deemed to represent zero participation. BIDS SUBMITTED WHICH DO NOT HAVE MB AND WB PARTICIPATION INDICATED ON THE APPROPRIATE FORM WILL NOT BE READ PUBLICLY DURING THE OPENING OF BIDS. These bids will not be considered for award by the Department and they will be returned to the bidder. Bidders have the option of submitting their MB and WB participation in an abbreviated format as required in Paragraph A below, or the bidders may submit their MB and WB participation in the additional detail required by Paragraph B below. In the event the bidder elects to submit MB and WB participation in accordance with Paragraph A and is determined to be the apparent lowest responsive bidder, that bidder must deliver to the Department no later than 12:00 noon of the sixth day following the opening of bids, a detailed MB and WB submittal as required by Paragraph B below.

Only those MB and WB firms with current certification by the Department will be considered acceptable for listing in the bidders submittal of MB and WB participation.

- A. The contractor shall indicate on the form for listing of MB and WB Subcontractors the following required information:

REQUIRED INFORMATION

- (1) The names of MB and WB firms committed to participate in the contract;
- (2) The Contract Item Numbers of work to be performed by each MB and WB firm; and
- (3) The total dollar amount to be paid to each MB and WB based on agreed upon unit prices.

Failure to indicate the required information on the specified form will cause the bid to be considered nonresponsive and it may be rejected.

B. In lieu of submitting the information required by (A) above, the bidder may submit the detailed information required below along with the bid proposal form.

REQUIRED INFORMATION

- (1) The names of MB and WB firms committed to participate in the contract;
- (2) The Contract Item Numbers and Contract Item Descriptions and agreed upon unit prices of work to be performed by each MB and WB firm; and
- (3) The total dollar amount to be paid to each MB and WB based on agreed upon unit prices.

Failure to indicate the required information on the specified form will cause the bid to be considered nonresponsive and it may be rejected.

The Department will not allow any substitutions, deletions, or other alterations to the listing of firms committed for MB and WB participation and/or the respective listed contract item numbers after opening of bids. The Department will not allow adjustments to total dollar amount of MB and/or WB participation after the opening of bids which would result in the MB and/or WB participation being less than the contract goal. The only exceptions to the requirements of this paragraph will be: (1) to allow for replacement of a MB or WB firm that had been decertified after opening of bids, and (2) to allow alteration of the listed contract item numbers subject to the Bidder submitting sufficient documentation to verify an obvious error in the initial submittal.

C. If the bid of the lowest responsive bidder exceeds \$500,000 and if the MB and/or WB participation submitted in response to Paragraph B exceeds the algebraic sum of the MB and WB goals by \$1000 or more, the excess will be placed on deposit by the Department for future use by the bidder. Separate accounts will be maintained for MB and WB participation and these may accumulate for a period not to exceed 24 months.

If the MB and WB participation submitted in response to Paragraph A/B does not meet or exceed the MB and WB contract goals, the apparent lowest responsive bidder must submit information to satisfy the North Carolina Department of Transportation that sufficient reasonable efforts have been made to meet the contract goals. One complete set and nine (9) copies of this information must be received in the office of the State Contractual Services Engineer no later than 12:00 noon of the sixth day following opening of bids. Where the information submitted includes repetitious solicitation letters it will be acceptable to submit a sample representative letter along with a distribution list of the firms being solicited. Documentation of MB and WB quotations shall be a part of the good faith effort submittal as necessary to demonstrate compliance with the factors listed below which the Department considers in judging good faith efforts. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

Where the bidder fails to provide this information by the deadline, the Department may impose the following sanctions: (1) disqualify the contractor and any affiliated companies

from further bidding for a period of time of no more than 90 days from the date of disqualification as established in notification by certified mail; and (2) disqualify the Contractor and any affiliated companies for award of all contracts for which bids have been received and opened.

The following factors are what the Department will consider in judging whether or not the bidder has made adequate good faith effort:

- (1) Whether the bidder attended any pre-bid meetings that were scheduled by the Department to inform MBs and WBs of subcontracting opportunities;
- (2) Whether the bidder provided written notice to a reasonable number of specific MBs and WBs that their interest in the contract is being solicited and whether the firms solicited could have reasonably been expected to quote the work in the contract;
- (3) Whether the bidder followed up on initial solicitations of interests by contacting MBs and WBs to determine with certainty whether they were interested;
- (4) Whether the bidder selected portions of the work to be performed by MBs and WBs in order to increase the likelihood of meeting the contract goals;
- (5) Whether the bidder provided interested MBs and WBs with adequate information about the plans, specifications and requirements of the contract;
- (6) Whether the bidder negotiated in good faith with interested MBs and WBs not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities;
- (7) Whether quotations were received from interested MB and WB firms but rejected as unacceptable without sound reasons why the quotations were considered unacceptable;
- (8) Whether the bidder made efforts to assist interested MBs and WBs in obtaining any required insurance or bonding that may be required by the bid proposal or by the bidder;
- (9) Whether the bidder specifically negotiated with Subcontractors to assume part of the responsibility to meet the contract MB and WB goal when the work to be sublet includes potential for MB and WB participation.

In the event one bidder is the apparent low bidder on two non-federally funded projects within the same letting located in the same geographic area of the state, as a part of the good faith effort the Department will consider allowing the bidder to combine the MB participation on the two projects so long as the overall MB goal value of both projects is achieved.

In the event one bidder is the apparent low bidder on two non-federally funded projects within the same letting located in the same geographic area of the state, as a

part of the good faith effort the Department will consider allowing the bidder to combine the WB participation on the two projects so long as the overall WB goal value of both projects is achieved.

Where the apparent lowest responsive bidder fails to submit sufficient participation by MB firms to meet the contract goal, as part of the good faith effort the Department will consider allowing the bidder to withdraw funds to meet the MB goal so long as there are adequate funds available from the bidders MB bank account.

Where the apparent lowest responsive bidder fails to submit sufficient participation by WB firms to meet the contract goal, as part of the good faith effort the Department will consider allowing the bidder to withdraw funds to meet the WB goal so long as there are adequate funds available from the bidders WB bank account.

Where the apparent lowest responsive bidder fails to submit sufficient participation by MB and WB firms to meet the contract goal and upon a determination by the Goal Compliance Committee based upon the information submitted that the apparent lowest responsive bidder failed to make sufficient reasonable efforts to meet the contract goal, the Department may reject the bid.

In the event that the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder that can satisfy the Department that the contract goal can be met or that adequate good faith efforts have been made to meet the goal.

DIRECTORY OF CERTIFIED BUSINESSES

Included with this Proposal Form is a list of Businesses which have been certified by the North Carolina Department of Transportation. Only those MB firms with current certification may be used to meet the contract MB goal. Only those firms with current certification may be used to meet the contract WB goal.

The listing of an individual firm certified by the Department shall not be construed as an endorsement of the firms capability to perform certain work.

REPLACEMENT OF MBs AND WBs

(A) Performance Related

If any MB or WB Subcontractor indicated on the form for listing of MB and WB Subcontractors, contained elsewhere in this proposal form, does not perform satisfactorily to the extent indicated or anticipated, the Contractor shall take all necessary, reasonable steps to replace the MB Subcontractor with another MB Subcontractor and/or the Contractor shall take all necessary, reasonable steps to replace the WB Subcontractor with another WB Subcontractor.

Any substitution of MB or WB firms after award of the contract shall be approved by the

Department. The Contractor shall submit any requests for substitutions through the Resident Engineer and the request must provide a valid basis or reason for the proposed substitution.

To demonstrate necessary, reasonable efforts, the Contractor shall document the steps he has taken to replace any MB or WB Subcontractor that is unable to perform successfully with another MB or WB Subcontractor. Such documentation shall include but not be limited to the following:

- (a) Copies of written notification to MBs/WBs that their interest is solicited in subcontracting the work defaulted by the previous MB or WB Subcontractor or in subcontracting other items of work in the contract.
- (b) Efforts to negotiate with MBs and WBs for specific subbids including at a minimum:
 - (1) The names, addresses, and telephone numbers of MBs and WBs that were contacted;
 - (2) A description of the information provided to MBs and WBs regarding the plans and specifications for portions of the work to be performed; and
 - (3) A statement of why additional agreements with MBs and WBs were not reached.
- (c) For each MB or WB contacted but rejected as unqualified, the reasons for the Contractor's conclusion.
- (d) Efforts made to assist the MBs and WBs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

Failure of the Contractor to demonstrate reasonable efforts to replace a MB or WB firm that does not perform as intended or anticipated, shall be just cause to disqualify the Contractor from further bidding for a period of up to 6 months after notification by certified mail.

(B) Decertification

1. If the Department has approved a Request for Subcontract for a particular MB or WB Subcontractor and that MB or WB Subcontractor is subsequently decertified by the Department; then the Department will not require the Prime Contractor to solicit replacement MB or WB participation equal to the remaining work to be performed by the decertified firm.
2. If a Prime Contractor has listed a MB or WB firm in his low bid submittal and the MB or WB firm is decertified prior to the Department approving a Request for Subcontract for the named MB or WB firm, the Prime Contractor may be required to make a good faith effort to:
 - (a) Replace the decertified firm with a certified firm, or
 - (b) To obtain replacement MB or WB participation in other areas of work.

DEFINITIONS

For purposes of this provision, the following definition will apply:

Minority Business or MB means a small business concern, which is owned and controlled by one or more minorities. Except that such term shall not include any concern or group of concerns controlled by the same minority or minorities which has average annual gross receipts over the preceding 3 fiscal years in excess of \$14,000,000, as adjusted by the Department for inflation. For the purposes of this part, owned and controlled means a business:

- (a) Which is at least 51 percent owned by one or more minorities or in the case of a publicly owned business, at least 51 percent of the stock of which is owned by one or more minorities; and
- (b) Whose management and daily business operations are controlled by one or more such individuals.

Minority is defined as a citizen or lawful permanent resident of the United States and who is:

- (1) Black (a person having origins in any of the black racial groups of Africa);
- (2) Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- (3) Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands);
- (4) American Indian

Women Business or WB means a small business concern, which is owned and controlled by one or more women. Except that such term shall not include any concern or group of concerns controlled by the same woman or women which has average annual gross receipts over the preceding 3 fiscal years in excess of \$14,000,000, as adjusted by the Department for inflation. For the purposes of this part, owned and controlled means a business:

- (a) Which is at least 51 percent owned by one or more women or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and
- (b) Whose management and daily business operations are controlled by one or more of the women who own it.

COUNTING MB/WB PARTICIPATION TOWARD MEETING THE MB/WB GOAL

- (1) If a firm is determined to be an eligible MB or WB firm and certified by the Department,

the total dollar value of the participation by the MB or WB will be counted toward the appropriate MB or WB goal. The total dollar value of participation by a certified MB or WB will be based upon unit prices agreed upon by the Prime Contractor and MB or WB Subcontractor.

- (2) The Contractor may count toward its MB or WB goal a portion of the total dollar value of participation with a joint venture, eligible under the standards of this provision, equal to the percentage of the ownership and controls of the MB or WB partner in the joint venture.
- (3)
 - (a) The Contractor may count toward its MB or WB goal only expenditures to MBs or WBs that perform a commercially useful function in the work of a contract. A MB or WB is considered to perform a commercially useful function when it is responsible for execution of a distinct element of the work of a contract and carrying out its responsibilities by actually performing, managing, and supervising the work involved. To determine whether a MB or WB is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, and other relevant factors.
 - (b) Consistent with normal industry practices, a MB or WB may enter into subcontracts. If a MB or WB Contractor or Subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of normal industry practices, the MB or WB shall be presumed not to be performing a commercially useful function. The MB or WB may present evidence to rebut this presumption to the Department. The Departments decision on the rebuttal of this presumption shall be final.
- (4) A Contractor may count toward its MB or WB goal 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from MB or WB regular dealer and 100 percent of such expenditures to a MB or WB manufacturer.
 - (a) For purposes of this provision, a manufacturer is a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor.
 - (b) For purposes of this provision, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a regular dealer, the firm must engage in, as its principal business and in its own name, the purchase and sale of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns or operates distribution equipment. Brokers and packagers shall not be regarded as manufacturers or regular dealers within the meaning of this section.
- (5) A contractor may count toward its MB or WB goal the following expenditures to MB or WB firms that are not manufacturers or regular dealers:
 - (a) The fees or commissions charged for providing a bona fide service, such as

professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for performance of the contract, provided that the fee or commission is determined by the Department to be reasonable and not excessive as compared with fees customarily allowed for similar services.

(b) The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fee is determined by the Department to be reasonable and not excessive as compared with fees customarily allowed for similar services.

(c) The fees or commissions charged for providing any bonds or insurance specifically required for the performance of the contract provided that the fee or commission is determined by the Department to be reasonable and not excessive as compared with fees customarily allowed for similar services.

REPORTS

Within 30 days after receipt of materials, supplies, or services from MBs or WBs, not otherwise documented by Request for Subcontracts (RS-1A/RS-1B), the Contractor shall furnish to the Engineer appropriate documentation (canceled checks, paid invoices, etc.) to verify expenditures with MB and WB concerns. The documentation should also indicate the percentage (60% or 100%) of expenditures claimed for MB or WB credit.

All requests for subcontracts involving MB or WB Subcontractors shall be accompanied by a certification executed by both the Prime Contractor and the MB or WB Subcontractor attesting to the agreed upon unit prices and extensions for the affected contract items. This document shall be on the Departments Form RS-1-D, or in lieu of using the Departments Form, copies of the actual executed agreement between the Prime Contractor and the MB or WB Subcontractor may be submitted. In any event, the Department reserves the right to require copies of actual subcontract agreements involving MB and WB Subcontractors.

The RS-1-D certification forms may be obtained from the Departments Resident Engineer.

These certifications shall be considered a part of the project records, and consequently will be subject to any penalties under State Law associated with falsifications of records related to projects.

REPORTING MINORITY BUSINESS ENTERPRISE OR WOMEN BUSINESS ENTERPRISE PARTICIPATION

When payments are made to Minority Business Enterprise firms or Women Business Enterprise firms, including material suppliers, contractors at all levels (prime, subcontractor, or second tier subcontractor) shall provide the Engineer with an accounting of said payments. This accounting shall be furnished the Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in (1) withholding of money due in the next partial pay estimate; or (2) removal of an approved Contractor from the prequalified bidders list or the removal of other entities from the approved subcontractors list. The accounting shall list

for each payment made to a MB/WB Enterprise firm the following:

	<u>DOT Project Number</u>
Payee Contractor Name	
Receiving Contractor or Material Supplier	
MB/WB Certification Basis, e.g., Woman Owned, Native American, African American, etc.	
Amount of Payment	
Date of Payment	

A responsible fiscal officer of the payee contractor, subcontractor, or second tier subcontractor who can attest to the date and amounts of the payments shall certify that the accounting is correct. A copy of an acceptable report may be obtained from the Engineer.

SP1G67

SUBSURFACE INFORMATION:

(SPECIAL)

Available subsurface information will be provided on this project. The Design-Builder is cautioned to make such additional and/or independent subsurface investigations as they deem necessary to satisfy themselves as to conditions to be encountered on the project.

COOPERATION BETWEEN CONTRACTORS:

7-1-95

The Design-Builder's attention is directed to Article 105-7 of the Standard Specifications.

There are projects on each end of this project which will not be complete before the date of availability.

The contract for construction of R-2000G on the North end of this project includes a requirement that the Contractor allow reasonable access to this R-2641 project through Ramps A and D at Existing US 64.

The Design-Builder on this project shall cooperate with any Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

SP1G133

SAFETY VESTS:

6-19-01

All Design-Builder's personnel, all subcontractors and their personnel, and any material suppliers and their personnel must wear an OSHA approved reflective vest or outer garment at all times while at the project site.

SP1G139

SAFETY INDEX RATING:

6-18-02

Revise the 2002 Standard Specifications as follows:

Page 1-10, Article 102-2

Before the last paragraph on this page, add the following paragraph:

"All subcontractors performing work for the Department shall have received a passing grade on

the Safety Index Rating form, in accordance with Article 102-2, prior to beginning work. Subcontractors can request the Safety Index Rating form from the State Contractual Services Engineer."

CLEARING AND GRUBBING:

9-17-02

Perform clearing on this project to the limits established by Method "III" shown on Standard No. 200.03 of the Roadway Standards.

SP2R01

The 2002 Standard Specifications shall be revised as follows:

Page 2-3, Article 200-5

Delete the first sentence of this article and insert the following:

The property owner will have no right to use or reserve for his use any timber on the project. All timber cut during the clearing operations is to become the property of the Design-Builder, and shall be either removed from the project by him, or else shall be satisfactorily disposed of as hereinafter provided.

BURNING RESTRICTIONS:

7-1-95

Open burning will not be permitted on any portion of the right-of-way limits established for this project. The clearing, grubbing or demolition debris designated for disposal and generated from the project shall not be burned at locations within the project limits, off the project limits or at any waste or borrow sites in this county. The clearing, grubbing and demolition debris shall be disposed of, by means other than burning, according to state or local rules and regulations.

SP2R05

ASPHALT CONCRETE PLANT MIX PAVEMENTS:

Revise the 2002 Standard Specifications as follows:

Page 6-36, Article 610-13

Add the following paragraph before the first paragraph:

The "Asphalt Price" used to calculate any price adjustments set forth in this section shall be \$35 per theoretical ton. This price shall apply for all mix types.

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:

11-21-00

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course, Type B 25.0X	4.3%
Asphalt Concrete Intermediate Course, Type I 19.0X	4.7%
Asphalt Concrete Surface Course, Type S 9.5X	6.5%
Asphalt Concrete Surface Course, Type S 12.5X	5.5%

The actual asphalt binder content will be established during construction by the CEI Firm within the limits established in the Standard Specifications or Project Special Provisions.

D6G08

PRICE ADJUSTMENTS FOR ASPHALT BINDER:

Adjustments will be made to the payments due the Design-Builder for each grade of asphalt binder when it has been determined that the monthly average terminal F.O.B. Selling Price of asphalt binder, Grade PG 64-22, has fluctuated from the Base Price Index for Asphalt Binder included in this Project Special Provision. The methods for calculating a Base Price Index, for calculating the monthly average terminal F.O.B. Selling Price and for determining the terminals used are in accordance with procedures on file with the Department's Construction Unit.

When it is determined that the monthly average terminal F.O.B. Selling Price of asphalt binder on the first business day of the calendar month during which the last day of the partial payment period occurs, varies either upward or downward from the Base Price Index, the partial payment for that period will be adjusted. The partial payment will be adjusted by adding the difference (+ or -) of the base price index subtracted from the monthly selling price multiplied by the total theoretical quantity of asphalt binder authorized for use in the plant mix placed during the partial payment period involved.

The CEI firm is responsible for:

Maintaining records in accordance with the procedures outlined in the Construction Manual for "Weight Tickets As A Basis Of Payment."

Summarizing and submitting these records monthly for review and approval by the Resident Engineer.

The Base Price Index for this project is \$199.65 per metric ton

VALUE ANALYSIS:

A. Value Engineering Constructions Proposals (VECP):

Value Engineering Construction Proposals as identified in the NCDOT Standard Specifications for Roads and Structures Article 104-12 will be accepted. Only proposals which alter the requirements of the RFP issued by the Department will be considered as Value Engineering Construction Proposals.

GENERAL:

USE OF TERMS:

Throughout this Design-Build Package and all manuals, documents and standards referred to in the Design-Build Package the terms Contractor, Bidder, Design-Builder, Design-Build Team and Proposer are synonymous.

DESIGN REFERENCES:

Design references developed and published by NCDOT and those developed and published by other agencies and adopted for use by NCDOT which are to be used in the design of this project may be obtained by contacting the Contract Office of the Design Services Unit. Standard prices for materials which the Department normally sells for a fee will be in effect. The Design Builder is responsible for designing in accordance with the applicable documents and current revisions and supplements thereto.

REVIEW AND APPROVAL OF DESIGN SUBMITTALS:

Major design milestones and required design submittals shall be identified as activities on the approved CPM for the project. Submittals will be reviewed within 10 working days (15 days for temporary structures) from the date of receipt by NCDOT unless otherwise stipulated in the scope of work. The Design-Build Team shall prioritize submittals in the event that multiple submittals are made based on the approved CPM. All submittals (four full size copies) shall be made simultaneously to the Resident Engineer (two hard copies) and to the designated person in the Highway Design Branch (two hard copies and an electronic copy following NCDOT CADD standards) unless stated otherwise in the scope of work. All submittals shall include pertinent special provisions. No work shall be performed prior to the approval of the design submittals.

OVERVIEW:

The project will be a 6-lane freeway on new location with a variable 18 meter to a 14 meter median. There will be interchanges at each end, overpasses, service roads and -Y- line realignments.

Project services shall include but are not limited to:

- Design Services – completion of construction plans
- Construction Services – necessary to build and ensure workmanship of the designed facility.
- Permit Modification.

The Record of Decision was approved August 31, 1999.

GENERAL SCOPE:

The scope of work for this project will include design, preparation of permit modification application, construction and construction engineering and management of the project. The

design work will include all aspects to provide a six lane freeway. The designs shall meet all appropriate latest versions of AASHTO Policy on Geometric Design of Highways and Streets, AASHTO Standard Specifications for the Design of Highway Bridges, Manual of Uniform Traffic Control Devices, and all NCDOT design criteria.

Construction will include but is not limited to all necessary roadway work, drainage, utility coordination, erosion and sediment control work items, foundation design, substructure work and superstructure work. Construction engineering and management, including quality control and quality assurance will be the responsibility of the Design-Builder. Construction will comply with NCDOT Standard Specifications for Roadways and Structures Edition of 2002 and any special provisions.

Areas of work required for this project will include, but are not limited to the following items:

1. Supplemental Surveys
2. Permit Modification
3. Drainage Design
4. Roadway Plan Preparation
5. Preliminary and Final Bridge Design
6. Subgrade Stabilization
7. Erosion and Sediment Control
8. R/W Utilities, Conflicts and Construction
9. Traffic Control and Pavement Markings
10. Foundation Design for Structure and Roadway
11. Signing
12. Construction
13. Project Management
14. Construction Management
15. QC/QA including inspections and testings
16. R/W Acquisition for easement if necessary

All designs must follow NCDOT CADD Standard guidelines.

DESIGN, CONSTRUCTION AND CEI WORK PERFORMED BY DESIGN-BUILDER:

The design work consists of the preparation of all construction documents for the East Wake Expressway on new location as outlined in the Scope of Work section of this package. All the design features of this project are expected to be within the existing right-of-way. The Design-Builder shall prepare final designs, construction drawings, permit drawings and special provisions.

The Department has performed some of design for this project. It will be the Design-Builder's responsibility to review these designs to the team's satisfaction. The Department assumes no responsibility as to the accuracy of the designs or to any of the quantities shown. The Design-Builder will be expected to accept full responsibility for the design of the project.

The Design-Builder shall be fully and totally responsible for the accuracy and completeness of all work performed under this contract and shall save the State harmless and shall be fully liable for

any additional costs and all claims against the State which may arise due to errors, omissions and negligence of the Design-Builder in performing the work.

There shall be no assignment, subletting or transfer of the interest of the Design-Builder in any of the work covered by the Contract without the written consent of the State, except that the Design-Builder may, with prior notification of such action to the State, sublet property searches and related services without further approval of the State.

The Design-Builder shall certify all plans, specifications, estimates and engineering data furnished by him.

All work by the Design-Builder is to be done in a manner satisfactory to the State and in accordance with the established customs, practices, and procedures of the North Carolina Department of Transportation and in conformity with the standards adopted by the American Association of State Highway Transportation Officials, and approved by the Secretary of Transportation as provided in Title 23, US Code, Section 109 (b). The decision of the State is to control in all questions regarding location, type of design, dimension of design, and similar questions.

Alternate designs, details or construction practices (such as those employed by other States, but not standard practice in North Carolina) are subject to Department review and will be evaluated on a case by case basis.

The Design-Build team shall not change team members, subconsultants or subcontractors identified in the RFQ or RFP without written consent of the Engineer. In addition, subconsultants and subcontractors not identified in the RFQ or RFP shall not perform any work without written consent by the Engineer. Failure to comply with this requirement may be justification for removing the team from further consideration for this project and disqualification from submitting on future Design-Build projects.

All firms shall be prequalified by the Department for the work they are identified to perform. Design firms and Natural Systems firms are prequalified by the particular office doing the work. If the work is to be done by an office other than the one that is prequalified, it will be necessary to have that office prequalified prior to any design submittals.

ETHICS POLICY:

Employees employed by the Design-Builder or employees employed by any subconsultant for the Design-Builder to provide services for this project shall comply with the DEPARTMENT'S ethics policy. Failure to comply with the ethics policy will result in the employee's removal from the project and may result in removal of the Company from the DEPARTMENT'S listing of Registered Qualified Engineering Firms.

APPROVAL OF PERSONNEL:

The DEPARTMENT shall have the right to approve or reject any personnel, assigned to a project by the Design-Builder.

The Design-Builder or any subcontractor for the Design-Builder which are employed to provide services for this project shall not discuss employment opportunities or engage the services of any person or persons, now in the employment of the State during the time of this contract, without written consent of the State.

In the event of engagement, the Design-Builder or their subcontractors shall restrict such person or persons from working on any of the Design-Builder's contracted projects in which the person or persons were formerly involved while employed by the State. The restriction period shall be for the duration of the contracted project with which the person was involved. "Involvement" shall be defined as active participation in any of the following activities:

- Drafting the contract
- Defining the scope of the contract
- Selection of the firm for services
- Negotiation of the cost of the contract (including calculating manhours or fees);and
- Administration of the contract.

An exception to these terms may be granted when recommended by the Secretary and approved by the Board of Transportation.

Failure to comply with the terms stated above in this section shall be grounds for termination of this contract and/or not being considered for selection of work on future contracts for a period of one year.

SUBMITTAL OF PROPOSALS:

General:

Technical and Price Proposals will be accepted until **4:00 P.M. Local Time on Friday August 29, 2003**, at the office of the Contract Officer, 1020 Birch Ridge Drive, Century Center Complex Bldg. B, Raleigh, NC. No Proposals will be accepted after the time specified.

Technical and Price Proposals will be accepted before and on the published date, and until the time specified. Proposals shall be submitted in 2 separate, sealed parcels containing the Technical Proposal in one and the Price Proposal in the other. Parcels shall be clearly marked to identify the project and the proposer. Each parcel shall also be clearly marked to identify the contents as the Technical Proposal or Price Proposal, as applicable.

Stipend:

A stipulated fee of **\$100,000** will be awarded to each proposer on the short-list who provides a responsive, but unsuccessful, proposal. If a contract award is not made, all responsive proposers shall receive the stipulated fee. The stipulated fee shall be paid to eligible proposers within ninety days after the award of the contract or the decision not to award. Once award is made, unsuccessful proposers will be notified of the opportunity to apply for the stipulated fee. If the Design-Builder agrees to accept the stipulated fee; in consideration for payment of the stipulated fee, the Department reserves the right to use any ideas or information contained in the proposals

in connection with any contract awarded for the project, or in connection with any subsequent procurement, with no obligation to pay additional compensation to the unsuccessful proposers. Unsuccessful Design-Build proposers may elect to refuse payment of the stipulated fee and retain any rights to its proposal and the ideas and information contained in it.

Technical Proposal:

Technical proposals shall be submitted in 8 copies and should address the technical elements of the design and construction of the project. Technical Proposals shall be on 8 1/2" X 11" pages printed on one side, double spaced, with a font size of 12 (No fold-out sheets allowed). The maximum number of pages, excluding appropriate 11" x 17" plan sheets, shall be 50 (fifty). The selection process will consider the understanding of the project, the anticipated problems and the solutions to those problems. Detailed criteria for completing the Technical Proposal follows later in this section. Key Project Team members, identified in the Request for Qualifications shall not be modified in the Technical Proposal without written approval of the Department. Any such request should be sent to the attention of Mr. Randy Garriss P.E. at the address below:

NCDOT-Design Services Unit
Century Center-Building B
1020 Birch Ridge Drive
Raleigh, NC 27610

Technical Proposals shall be submitted in a sealed package. The outer wrapping shall clearly indicate the following information:

Contract C200725
TIP NO. R-2641
Wake County
East Wake Expressway from Existing US 64 to US 64 (Knightdale Bypass) East of Raleigh

TECHNICAL PROPOSAL

Submitted By: (Design-Build Proposer's name)

Price Proposal:

The Price Proposal shall be submitted by returning the Design-Build package with the item sheets completed and all required signatures and bonds. Failure to execute the required documents may render the proposal non-responsive.

Price Proposals shall be submitted in a sealed package. The outer wrapping will clearly indicate the following information:

Contract C200725
TIP NO. R-2641
Wake County
East Wake Expressway from Existing US 64 to US-64 (Knightdale Bypass) East of Raleigh

PRICE PROPOSAL

Submitted By: (Design-Build Proposer's name)

TECHNICAL PROPOSAL EVALUATION:

The Technical Proposal shall be developed using narratives, tables, charts, plots, drawings and sketches as appropriate. The purpose of the Technical Proposal is to document the firm's understanding of the project, their selection of appropriate design criteria, and their approach for completing all design and construction activities. **The award of the design-build contract does not in any way imply that the Department accepts or approves the details of the technical proposal submitted by the Design-Build team. Decisions based on cost alone will not establish the design standards for the project.** The proposal will be evaluated on how well each of the following items is addressed:

EVALUATION FACTOR	POINTS
1. Responsiveness to RFP	57
2. Schedule and Milestones	20
3. Innovation	10
4. Maintenance of Traffic & Safety Plan	5
5. Oral Interview	8

TECHNICAL PROPOSAL EVALUATION CRITERIA:

1. Responsiveness to RFP – 57 points

- Design-Build Team Management – 25 points**

Describe the Proposer's concept of design management. The proposal shall identify key positions and subordinate organizational units.

Describe the plan for the coordination of civil/structural, utilities, traffic maintenance, constructability and environmental responsibility.

Provide a narrative description of the proposed location of the design office(s).

A description of how the designs developed by different firms and offices will be integrated.

A description of how design personnel will interface with the construction personnel.

Describe the overall strengths of the Design team and their ability to fulfill the design requirements of this project.

Quality Management

Describe how the Proposer will comply with the quality control requirements for both design and construction. Specifically, include a narrative describing the Design-Builder's understanding of the Department's construction quality control philosophy for this project and how the Design-Build Team will implement it. The Proposer will provide a schedule indicating the minimum number of inspectors that will be supplied at different stages during the project duration. The narrative shall include both design and construction activities.

Construction Management

Describe the Proposer's concept of the project construction management organization and how it interrelates with the other elements of the Proposer's organization for the project. Provide a brief narrative description of the Proposer's proposed plan for performing construction on the project. This description shall include at least the following:

A construction organization chart for the project, showing the relationships between functions shown on the chart and the functional relationships with subcontractors. The chart shall indicate how the Proposer intends to divide the project into work segments to enable optimum construction performance.

A description of those categories of work which the Proposer anticipates will be performed by the Proposer's own direct labor force and those categories which will be performed by subcontractors.

The Proposer's plans and procedures to insure timely deliveries of materials to achieve the project schedule.

Describe the overall strengths of the construction team and their ability to fulfill the construction management requirements of this project.

Disadvantaged Business Enterprises

Describe the Proposer's approach to ensuring that Disadvantaged Business Enterprises (DBE) will have opportunity to participate in the design and in the Construction Engineering and Inspection (CEI) aspect of the project. DBE firms to be utilized in the design and the CEI work shall be noted in the submittal for this RFP. It is expected that DBE design and CEI firm participation will be at least 5% of the overall design and CEI cost. The overall approach to ensuring DBE participation in all areas of work also needs to be addressed.

- **Natural Environmental Responsibility – 15 Points**

Describe the Proposer's approach to addressing environmental concerns within the project boundaries. Identify efforts to minimize impacts on wetlands, streams, riparian buffers, and other environmentally sensitive areas. Identify innovative approaches to minimize any

impacts in these areas. Describe any temporary impacts and associated minimization approaches. Describe the Design-Build Team's understanding of the overall permitting approach and the team's comfort level with obtaining the required permit within the allowed timeframe. Identify methods of construction in wetlands and buffers.

- **Design Features – 17 points**

Show plan view of design concepts with key elements noted.

Identify preliminary horizontal and vertical alignment of all roadway elements.

Show typical sections for the mainline of the project.

Identify drainage modifications and designs to be implemented.

Identify the appropriate design criteria for each feature. Identify any deviations from the established design criteria that will be utilized. Explain why the deviation is necessary.

Describe any Geotechnical investigations to be performed by the Design-Build Team.

Identify any special aesthetics considerations that will be part of the design.

Describe the general approach to the design and incorporation of the ITS components of the project.

Describe how any utility conflicts will be addressed and any special utility design considerations

Structure Features

Identify any special bridge design features to be constructed.

Identify types of any retaining walls and /or noise walls if applicable.

Address the approach to coordinating any necessary efforts with railroad owners.

2. Schedule and Milestones – 20 points

Provide a schedule for the project including both design and construction. The schedule shall show the sequence and continuity of operations, as well as the month of delivery of usable segments of the project.

3. Innovation – 10 points

Identify any aspects of the design or construction elements that the firm considers to be innovative. Include a description of alternatives that were considered whether implemented or not.

4. Maintenance of Traffic and Safety Plan – 5 points

Describe any traffic control requirements that will be used for each construction phase. Describe how traffic will be maintained as appropriate and describe the Proposer's understanding of any time restrictions noted in the RFP. Specifically describe how business and residential access will be maintained, if applicable.

Safety Plan

Describe the safety considerations specific to the project. Discuss the Design-Build Team's overall approach to safety.

5. Oral Interview – 8 points

Content

The Design-Build Team's Project Management Team shall present a brief introduction of the project team. Introductory comments are to be held to a maximum of 15 minutes. The Department will use this interview to ask specific questions about the teams background, philosophies, and approach to the project. Presentation and questions and answers shall not exceed 90 minutes. A maximum of eight (8) people from the Design-Build team may attend.

The Department will use the information presented in the oral interview to assist in the evaluation of the technical proposal.

SELECTION PROCEDURE:

There will be a Technical Review Committee (TRC) composed of Project Managers, and three or more senior personnel from involved engineering groups that will evaluate the Technical Proposal on the basis of the criteria provided in the Design-Build Package.

The selection of a Design-Builder will involve both technical quality and price. At the location, time and date indicated in the Design-Build package, the technical proposals shall be submitted and will then be presented to the TRC for evaluation. The TRC shall first determine whether or not the proposals are responsive to the requirements of the Design-Build Package. Each responsive technical proposal shall be evaluated based on the rating criteria provided in the Design-Build Package. The TRC will submit an overall technical proposal score for each firm to the Manager of the Contract Office Section. A maximum quality credit percentage will be assigned for each project as determined by the TRC.

Quality Credit Evaluation Factors for Technical Proposals

Responsiveness to RFP	57
Schedule and Milestones	20
Innovation	10
Maintenance of Traffic and Safety Plan	5
Oral Interview	8
<hr/>	
Maximum Score	100

The Manager of the Contract Office Section shall use a table based on the maximum quality credit percentage to assign a Quality Credit Percentage to each proposal based on the proposal's overall technical score. The maximum percentage for this project will be 25%.

Quality Credit Percentage for Technical Proposals

Technical Score	Quality Credit (%)	Technical Score	Quality Credit (%)
100	25.00	84	11.67
99	24.17	83	10.83
98	23.33	82	10.00
97	22.50	81	9.17
96	21.67	80	8.33
95	20.83	79	7.50
94	20.00	78	6.67
93	19.17	77	5.83
92	18.33	76	5.00
91	17.50	75	4.17
90	16.67	74	3.33
89	15.83	73	2.50
88	15.00	72	1.67
87	14.17	71	.83
86	13.33	70	0.00
85	12.50		

If any of the technical proposals were considered non-responsive, the manager of the Contract office will notify those Design-Builders of that fact. The Manager of the Contract Office shall publicly open the sealed price proposals and multiply each Design-Builder's price proposal by the Quality Credit Percentage earned by the Design-Builder's technical proposal to obtain the Quality Value of each Design-Builder's technical proposal. The Quality Value will then be subtracted from each Design-Builder's price proposal to obtain an Adjusted Price based upon Price and Quality combined. Unless all proposals are rejected, the Department will recommend to the State Transportation Board that the Design-Builder having the lowest adjusted price be awarded the contract. The cost of the design-build contract will be the amount received as the Price proposal.

The following table shows an example of the calculations involved in this process.

As Example of Calculating Quality Adjusted Price Ranking

Proposal	Technical Score	Quality Credit (%)	Price Proposal (\$)	Quality Value (\$)	Adjusted Price (\$)
A	95	20.83	3,000,000	624,900	2,375,100
B	90	16.66	2,900,000	483,140	2,416,860
C	90	16.66	2,800,000	466,480	2,333,520
D	80	8.33	2,700,000	224,910	2,475,090
E	70	0.00	2,600,000	0	2,600,000

* Successful Proposer – Contract Cost \$2,800,000

BEST AND FINAL OFFER:

In the event initial cost proposals exceed the Department's budget for the project or if the Department feels it is necessary for any reason the Department may choose to make amendments to the details of the RFP and request a Best and Final Offer from all of the previously shortlisted teams. Alternately, the Department may choose to redistribute to the shortlisted firms another RFP for the project with no amendments to the RFP scope.

After receipt of the redistributed RFP, the Design-Build Team has the option of changing their Technical Proposal details. If the Design-Build Team changes any component of the Technical Proposal the Department's Technical Review Team will review those amended components of the Technical Proposal and reevaluate the scores accordingly. The Design-Build Team shall highlight these changes to bring them to the attention of the Department. A revised total score will be calculated, if appropriate, based on these amendments to the Technical Proposal.

Additional oral interviews will not be held. The Design-Build Teams will submit both a revised cost proposal and a revised Technical Proposal (if applicable) at the time, place, and date specified in the redistributed RFP. A revised Quality Value (if required) and Adjusted Price will be determined as elsewhere in the RFP. This will constitute the Design-Build Team's Best and Final Offer. Award of the project may be made to the team with the lowest adjusted price on this Best and Final Offer for the project.

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ROADWAY DESIGN SCOPE OF WORK:

- Design and construct the East Wake Expressway (R-2641) from the US 64 Bypass (R-2547BB) to the North Wake Expressway (R-2000G) -L- Station 475+00. The proposed noise wall extends onto R-2000G. The Design Build Team shall establish appropriate limits at the interchange with US 64 Bypass to ensure proper grading and paving in order to accommodate the proposed structures, ramps, loop, and any drainage items. These limits shall be approved by the NCDOT and be consistent with the environmental permit. The structure on the East Wake Expressway over the US 64 Bypass shall be constructed to the ultimate 4 lanes. The proposed design consists of three lanes in each direction with a variable 18m to 14m median. The median width shall be 18m from the Knightdale Bypass R-2547BB to station 206+80 and transition to 14 meter at station 208+20. The Design Build Team shall design and construct the fly-over from eastbound US 64 Bypass to the Expressway, the ramp from the southbound Expressway to the westbound US 64 Bypass, the ramp from westbound US 64 Bypass to the Expressway, and the loop from the southbound Expressway to the eastbound US 64 Bypass. The Design Build Team shall design the future ramps, loops, and fly-over to the degree necessary to ensure that the future interchange will function. The Future fly-over shall be designed 2 lanes. The Design Build Team shall inform NCDOT of any changes to the design to a previously approved submittal.
- The design shall meet AASHTO 2001 Guidelines, January 2002 NCDOT Roadway Standard Drawings, NCDOT 2002 Roadway Design Manual, Roadway Design Policy and Procedure Manual, Design Services Unit's Guidelines for Roadway Design Activities, January 2002 North Carolina Standard Specifications for Highways and Bridges, and the AASHTO Roadside Design Guide 2002. The mainline shall meet Interstate standards, 110 kmh (70mph) design speed in rolling terrain, and follow the 0.10 max chart for superelevation. The design speeds for the ramps, loops, and fly-overs shall follow the guidelines as set forth in the AASHTO. The ramps shall follow the 0.08 max chart for superelevation. The pavement width for the ramps shall meet AASHTO guidelines, and satisfy capacity warrants. The fly-over from eastbound US 64 Bypass to the Expressway shall have 2 lanes. This does not necessarily require additional work along R-2547. The paved shoulders on the fly-over shall be per the NCDOT 2002 Roadway Design Manual. One-lane ramps shall provide 4.8 meter width for the through lane. The functional classifications that have a defined usable shoulder, shall have 0.6m added to the usable shoulder in both cut and fill sections. The offsets for all bridges shall be equal to or greater than the approach roadway paved shoulder. The limits of -Y-line construction shall be of sufficient length to tie to existing per all guidelines and standards. The slopes in the interchange area shall follow the requirements set forth in the Guidelines for Roadway Design Activities. The cul-de-sac on -Y11- will be built on the R-2547BB project.
- Structure Recommendations shall be provided by the Design Build Team and should be submitted for review with the 25% plans.
- No Design Exceptions shall be allowed for the 6-lane freeway. NCDOT prefers not to have design exceptions for the ramps, loops, fly-overs, and -Y- lines.

WAKE

- Noise Wall design for the wall listed in the approved Final Noise Report, including any geotechnical information necessary to design the drilled shaft foundations and wall envelope detail will be the responsibility of the Design-Build Team. The wall shall be the NCDOT standard steel pile with precast concrete panel wall. A copy of the Final Noise Report has been provided. The Design-Build Team shall design the noise wall per the Sound Barrier Wall Standard Drawings and Design guidelines, which have been provided. If the Design-Build Team revises the horizontal or vertical alignments, noise shall be re-analyzed.
- If the Roadway Design Manual, the AASHTO 2001 Green Book, the January 2002 Roadway Standard Drawings or any other guidelines, standards or policies used have desirable and/or minimum values, the Design Build Team shall use the desirable values.
- The Design Build Team shall develop construction plans using the current version of Microstation and Geopak software required by NCDOT and shall be in metric units. The plans shall follow NCDOT CADD standards including but not limited to NCDOT's file naming convention, leveling chart, and file folder structure. These standards can be found on the Engineering Guidelines web page: www.doh.dot.state.nc.us/guidelines/
- The Department will provide copies of the DEIS (Draft Environmental Impact Statement), FEIS (Final Environmental Impact Statement), ROD (Record of Decision), latest list of environmental commitments, municipal agreements and all pertinent approvals and correspondence.
- Electronic surveys will be furnished to the Design Build Team. Any additional surveys, including but not limited to additional topography, roadway, structure, utilities, drainage, wetland delineation, right of way, parcel names, and deed descriptions shall be the responsibility of the Design Build Team to acquire and process.
- The right of way for the East Wake Expressway has been acquired based on preliminary design. All construction shall be performed within this right of way. Any additional design or construction methods that require additional right of way and/or easement including but not limited to hydraulic recommendations, temporary causeways, and traffic control measures shall be the responsibility of the Design Build Team and shall be shown on the construction plans.
- This is a control of access facility. The placement of the woven wire fence shall be coordinated and approved by the NCDOT.
- The Design Build Team shall coordinate work and cooperate with the R-2547 Design Build Team to ensure accurate horizontal and vertical ties at the interchange. The Team shall also coordinate work and cooperate with the contractor on R-2000G. (See the Standard Specification entitled "Cooperation between Contractors" contained elsewhere.)
- All guardrail and cable guiderail placement shall be in accordance with NCDOT standard drawings and/or approved details in lieu of standards.
- The Design Build Team shall identify the need for any special roadway design details (i.e. any special drainage structures, rock embankment, rock plating, special guardrail, retaining walls,

WAKE

concrete barrier designs, etc.) and shall provide special design drawings. The Design Services Unit may have special details available that can be provided to the Design Build Team upon request. The Design Build Team shall refer to the list of details to be used in lieu of standards located at www.ncdot.org/business/

- Electronic plans shall be submitted to NCDOT for reviews when requested.
- The Design Build Team shall provide a copy of the final plans in both electronic and hard copy form.
- The Design Build Team shall provide a copy of the plans for right of way recordation in both electronic and hard copy form.
- The Design Build Team shall provide 8 hard copies of each submittal. ½ size plans are acceptable except for the final record set submittal, in which a full size set shall be submitted. The submittals will be as follows:
 - 25% Plans
 - Right of Way Plans
 - Final Plans –summary sheets and quantity sheets are not required for design purposes.
 The Design Build Team shall use the Design Services Unit's Guidelines for Roadway Design Activities for specific requirements for each of these submittals.
- The NCDOT shall provide electronic files of the preliminary design. The preliminary design prepared by NCDOT is included in the files for the NCDOT R-2547BB. Files will also be provided that include the most current design for the R-2547BB plans prepared by the North Carolina Constructors. The Design Build Team shall assume full responsibility for the project design, including the use of portions of the NCDOT's preliminary designs.

WAKE

PAVEMENT SCOPE OF WORK:

The pavement design for the mainline shall consist of the following:

- 290 mm doweled jointed concrete with 5 meter uniform joint spacing.
- 75 mm B25.0B
- 30 mm S9.5B
- Subgrade Stabilization

The pavement design for ramps, loops and flyovers connecting the Knightdale Bypass to the East Wake Expressway shall consist of the following:

- 255 mm doweled jointed concrete with 5 meter uniform joint spacing
- 75 mm B25.0B
- 30 mm S9.5B
- Subgrade Stabilization

In lieu of Subgrade Stabilization, 200 mm of Aggregate Base Course meeting all requirements of Article 520 of the Standard Specifications will be allowed, although Subgrade Stabilization is preferred. The Design Build team shall specify the method to be used in their technical proposal and shall use the proposed method throughout the project.

The Design-Builder may use either properly secured dowel baskets or a dowel bar inserter, provided the ability to correctly locate and align the dowels at the joints is demonstrated as described below. Joints are to be sawed to a depth of D/4 with a single saw cut and shall not be sealed. Sawing of joints should be done as early following placement as is possible using early entry saw equipment. Adequate sawing equipment and manpower should be assigned to prevent cracking in areas other than the intended joints.

The Design-Builder shall provide equipment that will document dowel bar location and alignment. Dowel bar locations and alignment shall be verified each time the Design-Builder mobilizes for paving. Ten percent of the joints in the initial 1.0 kilometer shall be evaluated.

If mislocated dowels are detected, an additional 25 percent of the dowel locations shall be checked. If mislocated dowels are detected in the additional 25%, NCDOT will have the option of suspending the use of the selected method, and requiring the team to use the alternate method.

If mislocated dowel bars are not detected in the initial 10%, the Design-Builder shall evaluate 5% of the remaining dowel bar locations.

Subgrade stabilization shall be to a depth of 200mm for lime and 175mm for cement. The type of subgrade stabilization shall be based on the geotechnical report. Typically, projects adjacent to this one have been stabilized with lime.

The mainline shoulders shall consist of the following:

- 70 mm S9.5C
- 110 mm I19.0C
- 110 mm B25.0C
- Variable depth Aggregate Base Course.

WAKE

The shoulders for ramps, loops and flyovers connecting the Knightdale Bypass to the East Wake Expressway shall consist of the following:

70 mm S9.5C

110 mm I19.0C

75 mm B25.0B

Variable depth Aggregate Base Course

Other pavement designs for this project are listed in the table below:

Line	Surface	Intermediate	ABC	Sub Stab.
Lynnwood Road	60 mm S9.5B	55 mm I19.0B	200 mm ABC	No
Old Faison	60 mm S9.5B	55 mm I19.0B	200 mm ABC	No

The Design/Build team will be responsible for the design of all temporary pavements and for evaluation of existing shoulders regarding their suitability for carrying traffic during construction, if necessary. Temporary pavements will be designed in accordance with the most recent version of the North Carolina DOT Pavement Design Procedure. Temporary pavement designs are to be submitted for review and comment using the contract submittal process. The expected duration for traffic on temporary pavement must be included as part of the submittal.

The Design/Build team will be responsible for design of continuous shoulder drains and outlets for the mainline and for concrete ramps, loops and flyovers. The shoulder drain design and outlet locations are to be submitted for review and comment using the contract submittal process. The shoulder drain design will be of the same general type as found in TIP project R-2547.

WAKE

STRUCTURES SCOPE OF WORK:

The Design/Build team shall obtain the services of a firm pre-qualified for Structure Design work from the Highway Design Branch list.

Design shall be in accordance with current AASHTO Standard Specifications for Highway Bridges, NCDOT Structure Design Manual (including policy memos), and NCDOT Bridge Policy Manual, and Norfolk Southern Corporation (NSC) "Guidelines for the Design of Grade Separation Structures" and AREMA. Construction and Materials shall be in accordance with 2002 NCDOT Standard Specifications For Roads and Structures, NCDOT Structure Design Unit Project Special Provisions, NCDOT Structure Design Unit Standard Drawings, and Norfolk Southern Corporation special provisions and State-Railroad Agreement.

Alternate designs, details, or construction practices (such as those employed by other states, but not standard practice in NC) are subject to Department review and will be evaluated on a case by case basis.

Anticipated Structures:

Bridge on East Wake Expressway (EWE) SBL over US 64 Bypass

Bridge on Ramp CA1 (2 Lanes wide) over US 64 Bypass

Bridge on Ramp CA1 (2 Lanes wide) over EWE

Bridge on Old Faison Road over EWE

Dual Bridges on EWE over Norfolk Southern Railway (NSC)/Mango Creek/Lynnwood Road.

Reinforced Concrete Box Culvert Extension at approximate Station 10+65-Rp A1-

Noise Wall (Standard SBW1SM & SBW2SM) at approximately Station 473+66 -EWE-.

The Design Build team will be responsible for all structures necessary to complete the project.

All bridges shall meet Roadway typical sections and grades.

Bridge geometry (width, length, skew, span arrangement, etc.) shall be in accordance with the approved Structure Recommendations and the Bridge Survey Report submitted by the Design Build team.

The minimum vertical clearance required for bridges over the East Wake Expressway or US 64 Bypass is 5.2 meters (17'-0"). The minimum vertical clearance required for spans over Lynnwood Road is 4.6 meters (15'-0"). The minimum vertical clearance over Norfolk Southern Railway is 7.011 meters (23'-0").

The superstructure type (prestressed concrete, cored slabs, steel, etc.) shall remain constant at individual bridge sites.

The proposed Mango Creek Greenway shall be considered when setting the span arrangements for the bridges over the Norfolk Southern Railway/Mango Creek/Lynnwood Road. Coordination will be required with the Town of Knightdale.

WAKE

The bridge width on Old Faison road shall be designed to accommodate a future sidewalk on one side with two bar metal rails (Standard BMR3M) on both sides. On the sidewalk side, the parapet height shall be increased by 50mm and the metal post decreased by 50m. The sidewalk shall be placed by others.

Other bridge barrier rails shall be jersey shaped barriers (Standard CBR1M).

Monotube or cantilever DMS support structures will not be allowed.

Attachment of sign structures to bridges will not be allowed.

Bridge attachments (e.g. ITS conduit, water lines) will not be allowed in the overhang of grade separations. Castings of conduit in the bridge deck or railing will not be allowed.

Shoulder piers for the bridge on Old Faison Road over East Wake Expressway are not allowed. Shoulder piers for other grade separations should be avoided. Minimum horizontal clearance for shoulder piers where unavoidable, shall be 10m from edge of pavement. Abutment walls should be avoided.

The substructures for dual bridges on EWE over US 64 Bypass and dual bridges on EWE over NSC/Mango Creek/Lynnwood Road shall line up to facilitate future widening to the median. Preliminary Engineering and Preliminary General Drawings for the NBL bridge for EWE over US 64 Bypass shall be prepared and submitted to the Department for review and for future completion of the Raleigh Outer Loop. The SBL bridge shall be designed and constructed to the lengths or vertical clearances dictated by the longer of the NBL or SBL bridge design.

Preliminary Engineering and Preliminary General Drawings shall be completed and submitted for Bridge on Ramp AC1 over US 64 Bypass using the guidelines stated above. The final horizontal and vertical alignments for Ramp A1 and Ramp AC1 shall accommodate this future bridge design over US 64 Bypass.

Contract Plan Submittals:

The required design submittals for each bridge in the scope of work are Preliminary General Drawings, Final Plans accompanied by special provisions, Release For Construction Drawings (RFCs), and As-Built Plans with complete design files. Preliminary General Drawings shall contain sufficient details either in the drawings or by an accompanying narrative to explain the scope of design and construction intended for the bridge(s), and shall list all anticipated special provisions and notes describing design data and materials properties (for guidance, refer to NCDOT Structure Design Manual Section 5, General Drawings). Final Plans are expected to have all plan details and notes completed for final review. The Final Plans submittals may be separated into substructure and superstructure or other submittals as necessary to accommodate construction schedules. If the Final Plans submittal is separated, each submittal should contain sufficient information for the review of that submittal.

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The required design submittals for culverts or other permanent structures are Final Plans accompanied by special provisions, Release For Construction (RFC) Drawings, and As-Built Plans with complete design files.

All comments by the Department, or NSC on all submittals shall be addressed in writing and by making appropriate changes to designs or drawings before construction of those elements begins. Re-submittal of plans may be required.

The required submittals to the Structure Design Unit are: Six half size (11" x 17") sets of Preliminary General Drawings are required; six half size sets of Final Plans are required; six half size sets of RFC's are required; and two full size sets of As-Built Plans is required. The Design-Builder shall be responsible for all additional copies of structure plans for other units as requested.

Working Drawing Submittals:

Working drawing submittals shall be in accordance with the "Submittal of Working Drawings" project special provision. Sufficient data shall be submitted prior to or with the working drawings to facilitate review.

Railroad Criteria:

Railroad overhead bridge designs shall meet Norfolk Southern Corporation "Guidelines for the Design of Grade Separation Structures" and AREMA, and Norfolk Southern special provisions and all provisions required by the agreement. Only NSC may grant exceptions to their guidelines or AREMA. NSC has indicated the allowance for additional future tracks or maintenance roadways is not required.

NCDOT requires a minimum Horizontal Clearance from the centerline of track of 7.620 meters (25'-0") to any substructure unit. Crashwalls on interior bents will not be permitted. The Design Builder shall contact Norfolk Southern Railway for typical Theoretical Section.

The Design/Build Team shall coordinate with J. N. Carter, Jr., Chief Engineer, Bridges and Structures, Norfolk Southern Corporation, 99 Spring Street, S. W., Atlanta GA 30303-0142, (contact is David Wyatt at telephone number 404-529-1641) to obtain plan approval and a signed legal agreement with Norfolk Southern Railway and the Department of Transportation as the parties in the agreement for overhead bridges crossing Norfolk Southern Railway in the vicinity of Milepost NS-222.76. The Department will review agreement prior to submittal to Norfolk Southern Railway. The Department will execute and distribute the Agreement within 14 calendar days of receipt. Agreement shall include necessary Force Account items such as preliminary engineering, construction engineering, flagging, and signal and communication lines. The Department will be responsible for payment of the Railroad's Force Account work; however, the Design/Build Team shall reimburse the Department for these costs including any Force Account estimate overruns.

Freight track Railroad Protective Liability Insurance to be provided by the Design-Build Team for Bodily Injury Liability, Property Damage Liability, and Physical Damage to Property is typically

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\$2,000,000 Per Occurrence and \$6,000,000 Aggregate Per Annual Policy Period. Norfolk Southern Corporation may require additional insurance or coverage.

Per Norfolk Southern Corporation there are an average of four (4) freight trains a day through this bridge site at a maximum speed of 40 miles per hour.

Coordination With Norfolk Southern Corporation:

The preliminary plan submittal to Norfolk Southern Corporation shall include bridge plans, NSC's "Overhead Grade Separation Data Sheet," appropriate roadway plan sheets showing impacts to NSC Right of Way, erosion control plans, and drainage calculations for any drainage on or across NSC Right of Way. A minimum of five (5) half size sets of preliminary plans and data shall be submitted to NSC. If NSC requires RFCs and/or final plans, then five (5) half size sets shall be provided to NSC. If any re-submittals of plans or any additional information is required, five (5) half size sets shall be submitted to NSC. Working Drawings affecting NSC Operations and Right of Way shall follow submittal process as outlined in the Standard Specifications or Special Provisions.

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GEOTECHNICAL ENGINEERING UNIT SCOPE OF WORK:**I. GENERAL:**

Obtain the services of a firm prequalified for geotechnical work from the Highway Design Branch List. The prequalified geotechnical firm should prepare foundation design recommendation reports for use in designing structure foundations, roadway foundations, retaining walls, sound barrier foundations and temporary structures. The prequalified geotechnical firm should also determine if additional subsurface information is required based upon the subsurface information provided by NCDOT and the final roadway and structure designs. Perform any additional subsurface investigation and laboratory testing in accordance with the current NCDOT *Geotechnical Unit Guidelines and Procedure Manual*. A minimum of 2 SPT/rock core borings is required per bent for all bridges except dual bridges. A minimum of 3 SPT/rock core borings is required per bent for both right and left lane dual bridges. The maximum spacing between borings for retaining walls is 61 meters with a minimum of two borings; one at each end of the wall. Drill borings for retaining walls to twice the maximum height of the wall.

II. DESCRIPTION OF WORK:

Design foundations, embankments, slopes, retaining walls, sound barrier foundations and temporary structures in accordance with the current allowable strength design AASHTO *Standard Specifications for Highway Bridges*, NCDOT *Structure Design Manual*, NCDOT *Roadway Design Manual* and the Geotechnical Engineering Unit *Roadway and Structure Foundation Guidelines*.

A. Structure Foundations

Design foundations with concrete footings, prestressed concrete piles, steel piles or drilled piers. Steel reinforcement is required for concrete foundations. Design spread footings with the bottom of footing elevation at or below the weathered rock or hard rock elevation. Key spread footings for interior bents of structures crossing streams a minimum of full depth below the 100 year design scour elevation and provide scour protection in accordance with scour protection detail in *the NCDOT Structure Design Manual*.

Piles for interior bents must have at least 10 feet (3 meters) of embedment below the lowest of the following: 100 year design scour elevation, bottom of footing elevation, finished or existing grade elevation. Obtain approval from the NCDOT Hydraulics Unit for any longitudinally battered piles for interior bents of structures crossing streams. Permanent steel casings are required for drilled piers that are constructed in 6 inches (150 mm) or more of water. Permanent casings may be required where drilled piers are constructed on stream banks.

When the weathered rock or rock elevation is below the 100 year hydraulic scour elevation, the 100 year and 500 year design scour elevations are equal to the 100 year and 500 year hydraulic scour elevations from the structure survey report approved by the NCDOT Hydraulics Unit. When the weathered rock or rock elevation is above the 100 year hydraulic scour elevation, the 100 year design scour elevation may be

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considered equal to the top of the weathered rock or rock elevation, whichever is higher, and the 500 year design scour elevation may be set 2 feet (600 mm) below the 100 year design scour elevation.

End bent fill slopes up to 35 feet (10.7 meters) in height (defined as the difference between grade point elevation and finished grade at toe of slope) must be 1.5:1 (H:V) or flatter. End bent slopes with heights greater than 35 feet (10.7 meters) or end bent cut slopes must be 2:1 or flatter. Extend end bent slope protection from the toe of slope to berm and to 1.75:1 (H:V) slope for 1.5:1 fill slopes or to the limits of the superstructure for cut slopes and for 2:1 or flatter fill slopes.

Design foundations for service loads using allowable stress design. The ultimate bearing capacity of all piles will be determined by "Method B - Wave Equation Analysis" outlined in Division II, Section 4.4 of the current allowable stress design *AASHTO Standard Specifications for Highway Bridges*.

Analyze drilled pier and pile bent foundations using either Lpile or FB-Pier. Drilled piers and vertical piles must be "fixed" in the soil/rock such that a decrease in pier or pile length will not significantly increase the top deflection. The D/B team structural engineer must approve deflections greater than 1 inch (25 mm) in the free head condition for either top of pile for a pile bent or top of column for post and beam construction on drilled piers.

B. Roadway Foundations

Design all unreinforced fill slopes for a slope of 2:1 (H:V) or flatter except bridge end bent slopes (see Section A) and a minimum stability factor of safety of 1.3. Design all cut slopes for a slope of 1.5:1 (H:V) or flatter and a minimum stability factor of safety of 1.5. Use limiting equilibrium methods, such as Modified Bishop, Simplified Janbu, Spencer or any other generally accepted method for slope stability analysis.

Design sound barrier foundations in accordance with current allowable stress design *AASHTO Guide Specifications for Structural Design of Sound Barriers*. A minimum factor of safety of 1.5 is required for shaft embedment depths.

Design and construct embankments such that a minimum of 90% of primary consolidation occurs after the embankment has reached finished grade. Embankment monitoring in accordance with the Embankment Monitoring Special Provision and the Standard Settlement Plate Detail is required when a waiting period of more than one month is recommended in the foundation design recommendation reports. Two settlement plates are required at each location. Space settlement plate locations no more than 200 feet (61 meters) apart or at each bridge end bent location, whichever is closer. Reinforced bridge approach fills in accordance with the NCDOT standard are required for end bents on all bridges.

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C. Permanent Retaining Wall Structures

Extensible reinforcement is not allowed for any permanent retaining walls. Modular block walls are not allowed for critical wall structures. Critical wall structures include walls supporting or adjacent to interstate highways, bridge abutments, wing walls and walls over 18 feet (5.5 meters) in height.

The following list of retaining wall types are acceptable for consideration for permanent applications:

- Gravity wall
- Cast-in-place cantilever wall
- Modular block wall
- Mechanically stabilized earth (MSE) wall
- Soldier pile cantilever wall with either a cast-in-place face or precast panels
- Anchored tieback wall
- Soil nail wall

Design and construct permanent retaining walls, with the exception of gravity walls and cast-in-place cantilever walls, in accordance with the applicable NCDOT *Project Special Provisions*. For each retaining wall, with the exception of gravity walls, submit a wall layout and design. The wall layout submittal should include the following:

- Wall envelope with top of wall, bottom of wall, existing ground and finished grade elevations at incremental stations.
- Wall alignment with stations and offsets.
- Typical sections showing top and bottom of wall, drainage, embedment, slopes, barriers, fences, etc.
- Calculations for bearing capacity, global stability and settlement.
- Details of conflicts with utilities and drainage structures.
- Roadway plan sheets showing the wall (half size).
- Roadway cross sections showing the wall (half size).
- Traffic control plans showing the wall (half size).

Gravity walls must be designed and constructed in accordance with the NCDOT Roadway Standard Drawings and the NCDOT 2002 *Standard Specifications*. Gravity walls do not require any submittals and should be identified in the roadway foundation design recommendation report. Cast-in-place cantilever walls must be designed and constructed in accordance with the NCDOT 2002 *Standard Specifications*.

Locate retaining walls at toe of slopes unless restricted by right of way limits. Any slopes behind walls are required to be 2:1 (H:V) or flatter. Embed retaining walls in accordance with FHWA Manual Demonstration Project 82 Reinforced Soil Structures MSEW and RSS or a minimum of 2 feet (600 mm), whichever is greater. The wall embedment depth is from the grade that intersects the front of the wall (either finished grade or natural ground elevation) or 100 year scour elevation, whichever is lower, to the top of the leveling pad.

Drainage over the top of retaining walls is not allowed. Sags in the top of walls should be avoided. Direct runoff above and below walls away from walls, if possible, or collect runoff at the walls and transmit it away. Curb and gutter or cast-in-place single faced barrier with paving up to the wall is required when runoff can not be directed away from the back or front of the wall. A paved concrete ditch with a minimum depth of 6 inches (150 mm) is required at the top of walls when slopes steeper than 6:1 (H:V) intersect the back of walls.

Precast or cast-in-place coping is required for walls without a cast-in-place face with the exception of when a barrier is integrated into the top of the wall. Extend coping or cast-in-place face a minimum of 6 inches (150 mm) above where the finished or existing grade intersects the back of the wall. Design concrete barriers integrated into retaining walls for traffic impact in accordance with AASHTO. A fence is required on top of the facing, coping or barrier or immediately behind the wall if there is no slope behind the wall.

Design end bents with abutment retaining walls for deep foundations only. Wing walls independent of abutment retaining walls are required unless approved otherwise by the NCDOT. When using abutment retaining walls, design the end bent and the wall independent of each other. When using piles and abutment retaining walls, brace piles are required. Do not consider lateral support from any fill placed around drilled piers behind abutment retaining walls when analyzing end bent stability. All deep foundations for end bents with abutment retaining walls must penetrate 10 feet (3 meters) into natural ground. If fill is required around piles or drilled piers, install foundations before placing any fill.

D. Temporary Structures

Design temporary retaining structures, which include earth retaining structures and cofferdams, in accordance with Section 4 of the 1995 or current allowable stress design AASHTO *Guide Design Specifications for Bridge Temporary Works* and the NCDOT Temporary Shoring for Maintenance of Traffic Special Provision. The only submittal required to use the standard sheeting design is the "Standard Shoring Selection Form".

Design and construct temporary retaining walls in accordance with the applicable NCDOT *Project Special Provision*. For temporary retaining walls, do not place a barrier within 5 feet (1.5 meters) of the face of the wall. If the barrier is between 5 and 9 feet (1.5 to 2.7 meters) from the face of the wall, anchor the barrier in accordance with Roadway Standard Detail No. 11.70.01.

III. SUBMITTALS:

Submit all structure and roadway foundation design recommendation reports, retaining wall layouts, retaining wall designs, reinforced slope designs and temporary structure designs for review. A separate structure foundation design recommendation report is required for each structure, except permanent retaining walls, and one roadway foundation design

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recommendation report is required for the entire project. All sound barrier foundations should be addressed in a foundation design report and will be considered one submittal. Seal all foundation design recommendation reports, plans, special provisions and calculations by a registered professional engineer licensed in the state of North Carolina.

Submit each retaining wall separately as two submittals, the wall layout and wall design. Do not submit wall layouts until 25% roadway plan submittal (line and grade) have been approved by the Engineering Coordination Section of the NCDOT Design Services Unit. Do not submit wall designs until the wall layouts have been approved by the NCDOT Geotechnical Engineering Unit. If temporary shoring is required to construct a retaining wall, submit the temporary shoring design as part of the wall design submittal. A review time of 20 business days is required for each retaining wall layout. A review time of 20 business days is also required for each retaining wall design.

IV. CONSTRUCTION REQUIREMENTS:

All construction and materials must be in accordance with the NCDOT 2002 *Standard Specifications* and current NCDOT *Project Special Provisions*. The D/B team is responsible for investigating and proposing remedial measures for any construction problems related to foundations, retaining walls, subgrades, settlement and slopes. The NCDOT Geotechnical Engineering Unit will review and approve these proposals.

The prequalified geotechnical firm that did the foundation designs must review the embankment monitoring data a minimum of once a month. Waiting periods may not be ended until less than 0.1 inches (2.5 mm) of settlement is measured over a period of four weeks.

The prequalified geotechnical firm that did the bridge foundation design must review and approve all pile driving hammers and drilled pier construction sequences and the NCDOT Geotechnical Engineering Unit will review these approvals. Perform hammer approvals with GRLWEAP Version 2002 or later and in accordance with the NCDOT 2002 *Standard Specifications*. Provide pile driving inspection charts or tables for all approved pile hammers. A minimum of 30 blows per foot or 300 mm is required to verify bearing and stresses during driving may not exceed the limits outlined in the FHWA "Design and Construction of Driven Pile Foundations". Provide field quality control for all bridge foundations including pile driving records and drilled pier inspection forms. Use current NCDOT inspection forms for drilled piers available on the DOH website under Soils and Foundation Design Section Forms in "Doing Business with NCDOT". Verify bearing on rock for spread footings in the field during construction. If prestressed concrete piles are used, test a minimum of one prestressed concrete pile for each bridge for bearing and stresses with a pile driving analyzer (PDA).

Crosshole sonic logging (CSL) tubes are required for all drilled piers. The NCDOT and/or the CEI firm will determine which piers will be CSL tested. CSL testing may be required for up to a third of the drilled piers for each bridge. The NCDOT Geotechnical Engineering Unit will determine if the CSL results are acceptable. The first drilled pier excavation that is not hand cleaned for each bridge bent may be inspected by the Department with the shaft inspection device (SID) in accordance with the Drilled Piers Special Provision.

Provide field quality control for all retaining wall and sound barrier foundations including verifying subsurface conditions for drilled in piles and bearing for shallow foundations.

Any changes to the foundation designs must be performed by the prequalified geotechnical firm that did the original design. All changes must be based upon additional information, subsurface investigation and/or testing. Drilled pier tip elevations may not be changed during construction unless the prequalified geotechnical firm that did the bridge foundation design redesigns the drilled pier from either a SPT/rock core boring in accordance with ASTM standards at the subject pier location or observations of the drilled pier excavation. If a drilled pier is redesigned based upon a boring, do not drill a boring inside an open drilled pier excavation. Locate the boring within three pier diameters of the center of the subject pier and drill to a depth of two pier diameters below the revised tip elevation. If a drilled pier is redesigned based upon observations of the drilled pier excavation, the geotechnical engineer of record must be present during the excavation to determine the actual subsurface conditions. Send copies of revised designs including additional subsurface information, calculations and any other supporting documentation sealed by a professional engineer registered in the State of North Carolina to NCDOT Geotechnical Engineering Unit. Also, send copies of any inspection forms related to foundations, settlement or retaining walls to the Geotechnical Engineering Unit.

Geotechnical Engineering Unit

ROADWAY AND STRUCTURE FOUNDATION GUIDELINES

The geotechnical firm is responsible for (but not limited to) addressing the following items for the roadway and structure foundation design of the project.

1. Analyze the stability of embankments and utilize recognized geotechnical engineering designs and construction methods to ensure embankment stability.
2. Analyze embankment settlement and if necessary, recommend mitigation through the use of undercut or soil improvement methods such as surcharges, waiting periods, wick drains, etc.
3. Address the following regarding embankment problems:
 - a. The feasibility of using geo-textiles to achieve stability, reduce excavation of soft soils and reduce the effect of settlement on the roadway.
 - b. The need for settlement gages, slope inclinometers and other embankment monitoring devices and their placement and location.
4. Determine the feasibility and recommend types of retaining walls or shoring for permanent or temporary situations. Design all retaining walls in accordance with the current allowable stress design AASHTO *Standard Specifications for Highway Bridges* and applicable FHWA manuals.
5. Determine amount of and recommend methods to mitigate any differential settlement problems at locations of culverts and utilities.
6. Analyze the stability of cut sections. Utilize recognized geotechnical engineering designs and construction methods to ensure cut slope stability.

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7. Analyze the stability of roadway approaches (to the distance from the bridge that affects the stability and design of the bridge foundations) and particularly the end slopes under the bridge, utilizing recognized geotechnical engineering designs and construction methods to ensure stability.
8. Recommend pile, drilled pier or spread footing foundations for structures with regard to bearing capacity, lateral stability, buckling analysis for piles, scour, settlement and constructability. Use the 100 year design scour elevation for foundation design.
9. Recommend allowable bearing pressure for spread footings considering settlement, adjacent foundations, water table, scour, etc. The scour critical elevation for a spread footing is at the bottom of footing elevation.
10. Address the following regarding pile and/or drilled pier foundations:
 - a. Method of support – skin friction, tip bearing or combination of both.
 - b. Tip elevations no higher than and estimated pile lengths.
 - c. Allowable axial load.
 - d. Settlement.
 - e. Number and location of test piles or piers and dynamic and/or static load testing.
 - f. Wave equation analysis using an appropriately chosen pile hammer and cushion material for each bent.
 - g. Necessity of using steel pile tips for concrete piles or pile points for steel piles.
 - h. Effects of vibration on adjacent construction or existing structures.
 - i. Corrosion effects of various soils and water (See Structure Design Unit's Policy Manual).
 - j. Downdrag on piles or piers.
 - k. Lateral stability and allowable horizontal deflections.
 - l. Design scour and scour critical elevations. The scour critical elevation for a drilled pier foundation is the 500 year design scour elevation. The scour critical elevation for a pile foundation is when the scour reaches an elevation that results in a factor of safety equal to 1.
 - m. Point of fixity or point of rotation.
 - n. Lateral squeeze for piles.
11. Include in the geotechnical recommendations report a summary table of the bridge foundation recommendations including the following:
 - a. State contract number, TIP number, county, description and bridge station.
 - b. Bent (work point) stations, types of foundations, allowable loads, bottom of cap or footing elevations, estimated pile lengths and tip elevations.
12. Address the following items, when applicable, as notes on plans or comments and attach to the summary table:
 - a. All appropriate notes on plans (See Structure Design Unit's Standard Foundation Notes on Plans).
 - b. End slope and extent of slope protection.
 - c. Waiting periods for approach slab construction or end bent construction.
 - d. Battered piles.
 - e. Point of fixity or point of rotation elevations.
 - f. Design and scour critical elevations.

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- g. Tip elevations no higher than.
- h. Steel pile points for steel piles or steel pile tips for concrete piles.
- i. Number and location of test piles or piers, load tests, dynamic and/or static testing.
- j. Required rock socket for drilled piers.
- k. Need for permanent steel casing including casing tip elevations, SPT, SID Inspection, CSL and slurry use in accordance with the Drilled Piers Special Provision.
- l. Range of allowable hammer energies for concrete and pipe piles.

Address any other items affecting the foundation design on the summary sheets and include all final recommendations on the summary sheets.

The geotechnical firm's attention is directed to the latest design guide entitled *Soils and Foundations Workshop Manual*, NHI Course No. 13212, Publication No. FHWA HI-88-009, published by the FHWA.

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CHEMICAL STABILIZATION OF SUB-GRADE MATERIALS:**GENERAL**

The scope of work consist of the following:

1. Technician Certification requirements
2. Laboratory inspection
3. Quality Assurance of laboratory tests

LABORATORY TESTS

The Technician(s) will be certified by Materials and Tests Unit and perform all laboratory tests in accordance with AASHTO specifications as modified by the NCDOT. The certifications will be specific to the tests required to complete the project and must be maintained until the project is completed. Copies of the NCDOT modified AASHTO procedures can be obtained from the Materials and Tests Unit's Soil Sub-Unit.

TEST	AASHTO DESIGNATION
Dry Preparation of Disturbed Soils	T-87
Particle Size Analysis of Soils	T-88
Determining the Liquid Limit of Soils	T-89
Determining the Plastic Limit and Plasticity Index of Soils	T-90
Moisture-Density Relations of Soils	T-99
Moisture-Density Relations of Soil-Cement Mixtures	T-134
Unconfined Compressive Strength of Cohesive Soil (Section 7)	T-208

CERTIFICATION PROCESS**LABORATORY INSPECTION**

Prior to beginning any testing, a representative from Materials and Tests Unit will visit the laboratory to verify the required testing equipment. Once the laboratory equipment is verified, a Materials and Tests Unit representative will re-visit the laboratory on a random basis for inspection throughout the life of the project.

TECHNICIAN CERTIFICATION (LABORATORY)

It is the responsibility of the company to provide Technician(s) with the necessary training. Prior to any testing, a representative from Materials and Tests Unit will visit the laboratory to verify if the Technician has received adequate training for performing the required tests. Once the Technician has been certified, a Materials and Tests Unit representative will re-visit the laboratory on a random basis to renew the certification throughout the life of the project.

QUALITY ASSURANCE PROCESS

ROUND-ROBIN

During the life of the project, a round-robin sample will be submitted to the laboratory randomly by the Materials and Tests Unit for comparison testing.

STABILIZATION OPTIONS

Select one of the following stabilization options for the entire project:

1. Stabilize sub-grade soils with either lime or cement.

CEMENT AND LIME STABILIZATION OF SUBGRADE SOILS

GENERAL

1. Sampling of Portland Cement and Lime
2. Determining rates of application
3. Designating areas to be stabilized by either lime or cement
4. Construction of cement or lime treated sub-grade
5. Conducting field tests to determine unconfined compressive strength
6. Submittals

SAMPLING OF PORTLAND CEMENT AND LIME

- a. One sample per 1000 tons of Portland Cement delivered to the project
- b. One sample per 500 tons of lime delivered to the project

DETERMINE RATES OF CHEMICAL APPLICATION

Based on laboratory testing, determine the rate of application required for either lime or Portland Cement. Select a rate that will provide a minimum unconfined compressive strength of 450 KPA for lime stabilized soils. For Portland Cement stabilized soils, select a rate that will provide a minimum unconfined compressive strength of 1900 KPA and a maximum of 3400 KPA.

DESIGNATING AREAS TO BE STABILIZED BY EITHER LIME OR CEMENT

Submit a letter indicating the beginning and end stations of areas to be stabilized by either lime or Portland Cement

CONSTRUCTION OF LIME TREATED SUBGRADE

Construct the lime treated sub-grade as specified in Section 501 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures with the following exceptions:

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Subsection 501-4 EQUIPMENT

Design-Builder's equipment will not require Engineer's approval.

Subsection 501-8 (A) GENERAL

Paragraph #1 is not applicable to this project.

Subsection 501-9 (B) PRELIMINARY CURING

Amend as follows: Allow a minimum of 2 days and a maximum of 4 days for preliminary curing.

Subsection 510-10 COMPACTING, SHAPING, AND FINISHING

Last paragraph is not applicable.

Subsection 501-11 THICKNESS

Last two paragraphs are not applicable.

Subsection 501-15 METHOD OF MEASUREMENT

The entire sub-sections is not applicable.

Subsection 501-16 BASIS OF PAYMENT

The entire sub-section is not applicable.

CONSTRUCTION OF CEMENT TREATED SUBGRADE

Construct the soil cement sub-grade as specified in section 542 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures, with the following exceptions:

Subsection 542-4 EQUIPMENT

Design-Builder's equipment will not require Engineer's approval.

Subsection 542-7 APPLICATION OF CEMENT

First paragraph is not applicable.

Subsection 542-11 THICKNESS

Paragraphs 2 and 3 are not applicable.

Subsection 542-16 METHOD OF MEASUREMENT

This entire sub-section is not applicable.

Subsection 542-17 BASIS OF PAYMENT

This entire sub-section is not applicable.

UNCONFINED COMPRESSIVE STRENGTH TESTING OF FIELD SAMPLES

Allow a minimum of seven days curing before testing for strength. Test lime and cement stabilized sub-grades by making field specimens. Compact the field specimens in accordance with AASHTO T-99 Criteria. Transport the specimens in a cooler or other device that will prevent moisture loss or

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damage. Cure the specimens for seven days in a moist room maintained at a temperature of $73 \pm 3^{\circ}$ F and a humidity of 100%. Test the cured specimens using the unconfined Compressive Strength test (AASHTO T 208 Section 7). Required unconfined compressive strengths:

Lime: minimum= 450 KPA

Cement: minimum=1900 KPA maximum=3400 KPA

Conduct tests at a frequency of one test every 140 meters, for each 10 meters running lane and the median. Perform these tests at random locations selected, using random number tables.

SUBMITTALS

1. Submit all laboratory test results for documentation.
2. Submit a sketch in plan view showing beginning and end stations of areas to be stabilized by either lime or cement and application rates for each stabilizer for documentation.
3. Submit any other documentation that would support recommendations for documentation.

Revise the 2002 Standard Specifications as follows:

Page 5-4, Article 501-8. In the second sentence of the first paragraph change 40 days to **24** days.

Page 5-28, Article 542-7. In the second sentence of the first paragraph change 45 days to **24** days.

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HYDRAULICS DESIGN SCOPE OF WORK:

Perform all hydraulic design necessary for the construction of the project including but not limited to the following:

- Storm Drainage Design
- All design in accordance with criteria provided in the North Carolina Division of Highways “Guidelines for Drainage Studies and Hydraulics Design-1999” and the addendum “Handbook of Design for Highway Drainage Studies-1973”
- Bridge Survey Report for Mango Creek (From RR to Lynnwood, Built from temporary bridge, No sag on bridge, No deck drains over water in zone 1 and preferably zone 2)
- Revise Culvert Survey Report(1)
- Attend Agency Meetings (Hydraulics Review and Permit Review, Provide Hydraulics plans and permit impact sheets 5 weeks before respective meetings)
- Stormwater Management Plan
- Permit Impact Sheets (1/2 size plans)
- Minimum ditch grade .3%
- Design/Builder will conduct the 4B & 4C meeting
- Design/Builder will take minutes of the above meetings and provide them to the Department within 3 business days

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CONSTRUCTION INSPECTION SCOPE OF WORK:

The Design-Build team shall employ a private engineering firm to perform Construction Inspection for all work required under this contract. This private engineering firm is to be a separate entity, unaffiliated with the Design-Builder in any way. Private engineering firms must be prequalified under the Department's normal prequalification procedures prior to bid submission. This Scope of Work describes and defines requirements for the construction inspection, materials sampling and testing, and technician level contract administration by the private engineering firm (commonly referred to as "Construction Engineering & Inspection" (CEI) firms) required for construction of this project.

A. General

- A.1 The CEI firm shall be responsible for all construction inspection, field materials sampling and testing, and technician level contract administration for the construction of the project.
- A.2 The CEI firm shall be responsible for all technician level construction administrative functions as defined in this scope of work and in accordance with the Department's Construction Manual and any other referenced manuals and processes.
- A.3 The CEI firm shall utilize effective control procedures such that the construction of the project is performed in reasonably close conformity with the plans, specifications, and contract provisions.
- A.4 The CEI firm shall be responsible for providing qualified technical personnel in appropriate numbers at the proper times such that all contract administration responsibilities are effectively carried out. Qualified technicians shall have all certifications necessary to perform the work required under this contract. **It is the CEI Firms responsibility to provide, at all times, an appropriate number of employees to perform the necessary CEI work.**
- A.5 All work shall be performed in accordance with the established standard procedures and practices of the DEPARTMENT. The CEI firm shall be familiar with Departmental standard procedures and practices as set forth in the Construction Manual and associated manuals and with informal procedures and practices for construction contract administration used by the DEPARTMENT. This includes adhering to all safety policies and procedures established by the DEPARTMENT. Failure on the part of the CEI Firm to perform this work as expected will result in suspension of all work on the project until adequate inspection processes are in place.

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B. Work Standards

- B.1 It shall be the responsibility of the CEI firm to ensure that the project is constructed in reasonably close conformity with the plans, specifications, and contract provisions.
- B.2 The CEI firm shall document any observed omissions, substitutions, defects, and deficiencies noted in the work, take corrective action necessary, and advise the DEPARTMENT accordingly.
- B.3 The CEI firm shall, in a timely manner make normal and routine project decisions consistent with the DEPARTMENT'S policies and procedures and general guidance by the DEPARTMENT'S Resident Engineer.
- B.4 The CEI firm shall make and record such measurements as are necessary to assure that minimum sampling and testing requirements are being met and to calculate and document quantities for payment as required.
- B.5 The CEI firm shall monitor on-site and off-site construction operations and inspect all materials entering into the work as required such that the quality of workmanship and materials is such that the project will be completed in reasonably close conformity with the plans, specifications, and other contract provisions. The CEI firm shall keep detailed, accurate records daily of construction operations and significant events that affect the work.
- B.6 The standard procedures and practices of the DEPARTMENT for inspection of construction projects are set out in the DEPARTMENT'S Construction Manual. The CEI firm shall perform inspection, sampling and testing, and technician level contract administration in accordance with these standard procedures and practices and other accepted practices as may be appropriate.
- B.7 The CEI firm shall perform field sampling and testing of component materials as described in the Minimum Sampling Guide and completed work items such that the materials and workmanship incorporated into the project are in reasonably close conformity with the plans, specifications, and contract provisions. CEI firm personnel performing sampling and testing must have appropriate certifications for each test that is performed.
- B.8 The CEI firm shall maintain, on a daily basis, a complete and accurate record of all activities and events relating to the project and a record of all construction work completed, including quantities of materials used and work accomplished in conformity with the DEPARTMENT'S policies and procedures.
- B.9 The CEI firm shall prepare inspector's daily reports of the construction operations in accordance with the DEPARTMENT'S Construction Manual. **These shall be forwarded to the Department's Resident Engineer on a daily basis.**

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- B.10 The CEI firm shall maintain records of all sampling and testing accomplished and analyze such records required such that acceptability of materials and completed work items is determined. The CEI firm shall furnish records on a weekly basis to the Department's Resident Engineer for inclusion into the HiCAMS computer system.
- B.11 The CEI firm shall, at a minimum, each month prepare a comprehensive tabulation of the quantity of each work item satisfactorily completed to date. Quantities shall be based on daily records or calculations. Calculations shall be retained. The tabulation will be submitted to the DEPARTMENT'S Resident Engineer who shall prepare and submit the progress payment estimate.
- B.12 The CEI firm shall provide timely interpretations of the plans, specifications, and contract provisions. The CEI firm shall consult with the DEPARTMENT'S Resident Engineer when an interpretation involves complex issues or may have a significant impact on the cost of performing the work or is known to be an area of dispute with the Design-Builder.
- B.13 The CEI firm shall monitor each construction operation to the extent necessary to determine whether construction activities violate the requirements of any permits. The CEI firm shall notify the Design-Builder immediately of any violations or potential violations and require his immediate resolution of the problem. Permit violations shall be reported to the DEPARTMENT'S Resident Engineer immediately.
- B.14 If ground disturbing activities are a part of this project, the CEI firm shall perform an erosion control inspection daily and/or after every significant rainfall event. The CEI firm shall inspect all erosion and sediment control measures at the end of each working day to ensure all measures have been properly installed or reinstalled if the measures were removed to perform the work. The list of deficiencies will be provided to the DEPARTMENT'S Resident Engineer as well as the Design-Builder's Project Manager. The CEI firm shall maintain an updated set of erosion control plans in accordance with DEPARTMENT policy.

The CEI firm shall have a dedicated erosion control inspector who is knowledgeable of current North Carolina Sediment and Erosion Control Laws and vegetation establishment and maintenance techniques.

C. Data and Services to be Furnished by the Department

- C.1 The DEPARTMENT will furnish to the CEI firm Construction Manuals, Minimum Sampling Guides, Standard Specifications, project diaries, and any Departmental forms necessary for the performance of the Scope of Work.

- C.2 The DEPARTMENT will perform Quality Assurance on a minimum of 10% of the samples taken. The Department reserves the right to inspect any and all processes and procedures at any time.
- C.3 All QMS Verification sampling and testing of asphalt pavements and all QMS asphalt lab Quality Assurance sampling and testing necessary for this project will be performed by the Department.

D. Miscellaneous Provisions

- D.1 The control and supervision of all phases of the Scope of Work performed by the CEI firm shall be under the direction of a Professional Engineer or a person with an acceptable combination of education and experience. The CEI firm shall assign at all times a staff of competent, qualified technicians adequate in number and experience to perform the described Scope of Work.
- D.2 The CEI firm shall maintain all books, documents, papers, accounting records, and other information pertaining to costs incurred on this project and to make such materials available at its offices at all reasonable times during the contract period and for three (3) years from the date of final payment by the DEPARTMENT, or any authorized representative of the DEPARTMENT. Copies thereof shall be furnished to the DEPARTMENT if requested.
- D.3 Employees of the CEI firm or employees of any subconsultant for the CEI firm to provide inspection services for this project shall comply with the DEPARTMENT'S ethics policy. Failure to comply with the ethics policy will result in the employee's removal from the project and may result in removal of the CEI firm from the DEPARTMENT'S list of prequalified Engineering Firms for Construction Engineering and Inspection.
- D.4 The DEPARTMENT shall have the right to approve or reject any personnel, assigned to a project by the CEI firm.

E. Compensation

- E.1 No direct compensation will be made for the work of "Construction Inspection". Compensation is included in the lump sum line item for design and construction of the entire project. No separate payment will be made for vehicles, office space, inspection equipment, materials, training requirements, surveying equipment, or any other incidentals as may be necessary to accomplish this work. The Design-Builder shall compensate the CEI firm for services provided by the CEI firm on a lump sum basis. Compensation shall not be made on any type of unit price basis. The CEI firm is not allowed to provide an hourly quote for services to the

WAKE

Design-Builder. The CEI quote for services to the Design-Builder must be in the form of a lump sum quote.

F. Other

- F.1 The Resident Engineer & the Assistant Resident Engineer will be Department employees maintaining their traditional duties and responsibilities.
- F.2 The Design-Builder shall perform all quality control for the Quality Management System (QMS) for Asphalt Pavements in accordance with section 609 of the Standard Specifications. The CEI firm shall perform all quality assurance for the QMS for Asphalt Pavements in accordance with Section 609 of the Standard Specifications. The CEI firm or any subcontracting CEI firm on this project is not allowed to perform both quality control and quality assurance under the QMS for asphalt pavements specifications.
- F.3 Materials sampling, testing, or approval required in state or out of state precast concrete, steel manufacturing, and other fabricating facilities where the Department's Materials and Tests Unit routinely performs these functions will continue to be performed by the Department.
- F.4 DBE goals for this contract do not include participation by any DBE CEI firms. Contract goals must be met utilizing highway construction contractors.
- F.5 The CEI firm is responsible for maintaining as-built plans during the construction and delivering a final set of as-built plans to the Resident Engineer upon completion of the project. The CEI firm shall also prepare the final estimate in accordance with Departmental policy for submittal to the Resident Engineer at the conclusion of the project.

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ENVIRONMENTAL PERMITS SCOPE OF WORK:

The Department has obtained the required environmental permits for the preliminary design of this project. These consist of the US Army Corps of Engineers Section 404 Permit, the NC Department of Natural Resources, Division of Water Quality Section 401 Water Quality Certification, and a Neuse River Riparian Buffer Authorization Certificate. These permits were obtained in conjunction with the permits for R-2547 BA, BB, C, & CC and were obtained using preliminary design. **These permits must be modified by the Design Builder to include the final designs by the Design-Builder. The modification, approved and issued by the above listed agencies, must be obtained prior to beginning any construction in jurisdictional or non-jurisdictional areas.** In compliance with conditions in the existing Section 401 Water Quality Certification and the Section 404 Permit the modified permit must be issued by the agencies prior to beginning any construction on the project.

The relocation of utilities may not occur prior to the issuance of the permit modification. Geotechnical investigations that must be completed prior to initiation of construction must be permitted under a Nationwide Permit #6. The Design Builder is responsible for preparing the application, obtaining review and approval by NCDOT PDEA. NCDOT will then submit the application to the agencies as needed.

The Design-Builder is **bound** by the terms of the existing permit and is held accountable for meeting all permit conditions. If the Design-Builder elects to construct portions of the project outside of the conditions of the existing permit; it will be the Design-Builder's responsibility to prepare all revised impact sheets or drawing(s), prepare permit modification application, and submit these documents to the Department for review and processing through the regulatory agencies. The Design-Builder is advised that the Department will not be held responsible for time delays or guarantee that the proposed Design-Builder's modification(s) can be obtained from the regulatory agencies. In such an event it will be solely the Design-Builder's responsibility to assume all costs and delays that may result in penalties associated with the modification request unless noted in the provisions below.

It is the Design Builder's responsibility to prepare permit drawings that reflect the impacts and minimization efforts resulting from the project as designed by the Design Builder. The preparation of the information for these drawings is the responsibility of the Design Builder. Further it is the Design-Builder's responsibility to provide these final permit impact sheets (drawings) depicting the final design and construction details to the Department as part of the permit application. The Design-Builder will be responsible for developing the permit modification application for all jurisdictional impacts. The permit modification application is to consist, at a minimum, of the following:

- Cover Letter
- Neuse Buffer Addendum
- Minutes from the 4b and 4c meetings
- Permit drawings
- Half-size plans

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The Design Builder is responsible for updating those environmental data that need to be updated. These include but are not limited to: federally protected species, historic and archaeological sites, Neuse buffer status for streams, and 303d (impaired) streams. The Design Builder shall obtain concurrence from the United States Fish and Wildlife Service (Service) to document compliance with Section 7 of the Endangered Species act for those species requiring such concurrence.

The Design Builder is not responsible for design, construction or environmental permitting (including mitigation) for Site 8 and 9.

The Department will provide the Design-Builder with an example of a permit modification application which will include a Neuse Buffer Addendum.

Direct coordination between the Design-Builder, the Department's Resident Engineer, and the Department's Office of Natural Environment (Project Development and Environmental Analysis (PDEA) Branch) will be a necessity to ensure proper permit modification application development. Upon completion of the permit modification application package the Design-Builder will forward the package to the Department (PDEA) for review and approval. The Department will subsequently forward the package to the appropriate agencies to have the permit modified to reflect the details.

The Department will allow no direct contact between the Design-Builder and representatives of the environmental agencies without prior approval. No contact between the Design-Builder and the environmental agencies will be allowed, either by phone, e-mail or in person, without representatives of the Department's PDEA Branch and/or the Division 5 Environmental Officer present.

The permit application for the project has reached the "4A" milestone in the "Merger 01 Process" used by the environmental agencies and the Department to obtain environmental permits for projects. The Design-Build team is required to participate in steps 4B and 4C that are necessary to complete the permitting process. The Design-Builder is directed to follow the appropriate details in the document titled "Team 22: Merger 01 Implementation Team – Merger 01 Process Information" available from the Department of Transportation.

The 4B review meeting is scheduled for January/February, 2004. The 4C meeting is scheduled for March/April, 2004. The Design-Builder must notify the Department with a set schedule for these meetings 60 days prior to requiring the meetings. Failure on the part of the Design-Builder to meet these dates without rescheduling with proper advanced notice places all responsibility for delays solely in the hands of the Design-Builder.

The Design-Builder shall submit one permit modification application for the entire project. The Design-Builder shall not submit multiple applications to develop a "staged permitting" process to expedite construction activities in a phased fashion. Permit modification applications beyond the initial "project wide" modification will only be allowed if the Engineer determines it to be in the best interest of the Department and will be strongly discouraged.

The Design-Builder should expect it to take up to 9 months to accurately and adequately complete all designs necessary for satisfactory permit modification, submit the permit

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modification request to the Department, and obtain approval for the modification from the environmental agencies.

The Department's PDEA Branch requires up to 30 days for internal review. Agency review time will be approximately 100 days. No requests for additional contract time or compensation will be allowed if the permit modifications are obtained within this 9-month period. No mobilization of men, materials, or equipment for design or construction of the project shall occur prior to obtaining the permit modifications (either within the 9-month period or beyond the 9-month period). The Department will not honor any requests for additional contract time or compensation, including idle equipment or mobilization or demobilization costs, for the Design-Builder mobilizing men, materials (or ordering materials), or equipment prior to obtaining the permit modifications necessary to proceed with construction. The Department will consider requests for contract time extensions for obtaining the permit modifications only if the Design-Builder has pursued the work with due diligence, the delay is beyond his control, and the 9-month period has been exceeded. If time were granted it would be only for that time exceeding the 9-month period. **This 9-month period is considered to begin on the Date of Availability as noted in the contract.**

The Design-Builder needs to be aware that the time frames listed above for review by PDEA, DWQ, and the Army Corps of Engineers to review any permit applications and/or modifications begin only after a fully complete and 100% accurate submittal.

It is expected that the Design-Builder will determine areas where the impacts on environmentally sensitive areas can be further reduced from that indicated in the existing permit. The following incentives will be paid to the Design-Builder for reductions of these impacts:

Incentive for Reduction of Impacts in Environmentally Sensitive Areas

The Design-Build Team is expected to employ innovative efforts to reduce impacts to environmentally sensitive areas within the project boundaries. While extensive minimization efforts have taken place during the procurement of the environmental permits for this project, the Design-Build Team is expected to further minimize these impacts as the final designs are completed.

As an incentive to encourage further minimization efforts the Design-Build Team will receive incentive payments equal to the following:

\$75,000 per acre, or portion thereof, for any reductions in wetland impacts,
\$500 per linear foot for reduction of stream impacts,
\$75,000 per acre, or portion thereof to riparian buffer areas,
Development of acceptable mitigation that will result in the restoration of jurisdictional resources also may be considered for these incentive payments. This mitigation would need to be within the same hydrological unit as those impacted by the project.

Further, the development of any innovative approach to minimizing impacts on environmentally sensitive areas that can be utilized on future Department of Transportation projects will be rewarded with a one-time monetary bonus of up to \$50,000. The applicability of these innovative approaches and the final determination of the value of the bonus will be made by the Engineer.

Mitigation Responsibilities of the Design Builder

The Department has implemented the mitigation identified in the existing permit. The mitigation was based on the impacts calculated from the preliminary design plans that were used to obtain the project permit. The Design Builder will not be responsible for any portion of the work on these sites.

The calculations as presented in the original application had errors. We have provided the Design Builders with corrected drawings and calculations of impacts. The NCDOT will be responsible for any additional mitigation resulting from the revised calculations. Please be advised that when the permit modification is prepared the Design Builder must use the figures in the original permit as the baseline information.

Any design or construction details, which are not in conformance with the permit, *must be approved by NCDOT Hydraulics Unit and by PDEA prior to the 4B meeting. The changes must then be approved by the agencies at the 4B meeting. Likewise, the changes must be reviewed and approved by the NCDOT Hydraulics Unit and by PDEA prior to the 4C meeting. These changes must be approved by the agencies at the 4C meeting and the permit drawings must be presented at the 4C meeting and approved by the agencies.*

Should additional jurisdictional impacts result from revised design/construction details, suitable compensatory mitigation for wetlands, streams and/or Neuse River riparian buffers will be the sole responsibility of the Design-Builder. Please be advised that the NCDENR Ecosystem Enhancement Program (EEP) may NOT be available to be used for providing mitigation for this project. Therefore, It is important to note that additional mitigation will have to be approved by the agencies and such approval will require, at a minimum to, necessitate the preparation and approval of a mitigation plan before permit modification(s) is/are approved and before construction may commence.

Any new areas to be impacted that have not been analyzed during the preparation of the original NEPA process and permit applications will need to be analyzed. This analysis should include performing all environmental assessments. These assessments will require the Design-Builder to engage the services of a competent environmental consultant to conduct a full environmental investigation to include, but not be limited to, Federally listed Threatened and Endangered Species, wetlands, streams, buffers, avoidance and minimization in jurisdictional areas, compensatory mitigation, FEMA compliance, and historical, archaeological, and cultural resources surveys in these areas. The environmental consultant shall obtain concurrence from the United States Fish and Wildlife Service (Service) to document compliance with Section 7 of the Endangered Species act for those species requiring such concurrence. In addition the Design Builder shall identify additional mitigation required, identify the amount of time the modification will take beyond the 9 month period, and the fulfillment of any other requirements that may be imposed by the permitting agencies to obtain the permit modification.

Right-of-way procurement will be part of the work required to be performed by the Design-Builder as part of this contract only if the Design-Builder requires additional easements and/or right-of-way

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after completion of all hydraulic and other final designs. The Design-BUILDER shall include a description of any impacts to jurisdictional resources that will occur within any additional right-of-way to be procured. If any additional right-of-way is necessary, the Design-BUILDER shall obtain the services of a competent environmental consultant to conduct an environmental screening of the area. Prior to conducting the environmental screening the Design-BUILDER shall notify the Department and identify the competent environmental consultant. If the screening identifies environmentally sensitive areas, the Design Builder should perform a full environmental assessment. This assessment will include, but not be limited to: Federally listed Threatened and Endangered Species, wetlands, streams, buffers, avoidance and minimization in jurisdictional areas, compensatory mitigation, FEMA compliance, and historical, archaeological, and cultural resources surveys in these areas. The environmental consultant shall obtain concurrence from the United States Fish and Wildlife Service (Service) to document compliance with Section 7 of the Endangered Species act for those species requiring such concurrence. In addition the Design Builder shall identify additional mitigation required, identify the amount of time the modification will take beyond the 9 month period, and the fulfillment of any other requirements that may be imposed by the permitting agencies to obtain the permit modification.

If any staging areas are located outside the existing right-of-way, the Design-BUILDER shall engage the services of a competent environmental consultant to conduct a full environmental investigation to include, but not be limited to, Federally listed Threatened and Endangered Species, wetlands, streams, buffers, avoidance and minimization in jurisdictional areas, compensatory mitigation, FEMA compliance, and historical, archaeological, and cultural resources surveys in these areas.

The Design-BUILDER must also clearly indicate the location of and impacts of haul roads and utility relocations on jurisdictional areas. These details submitted must be included in the data for the permit modification. Further, the Design-BUILDER must describe the methods of construction of all structures. The relocation of utilities may not occur prior to the issuance of the permit modification. The description of the temporary impacts (haul roads, utility relocations, work bridges, etc.) must include restoration plans, schedules, and disposal plans. This information must be included in the permit modification application. This information must also be part of the data presented at the 4B and 4C meetings. There must be particular emphasis on minimizing impacts during the construction of the bridge over Mango Creek and adjacent wetlands and floodplain. Please be advised that no rock causeways will be allowed in the aforementioned Mango Creek area.

Any temporary construction measures, including de-watering, construction access, etc. that is not specifically authorized in the existing permits, must be addressed in the permit modification application. Impacts that result from so-called temporary measures may not be judged to be temporary impacts by the agencies. These issues must be addressed and reviewed by PDEA (Office on Natural Environment) prior to the 4B and 4C meetings and resolved with the agencies during the 4B and 4C meetings.

The Design Builder is responsible for ensuring that the design and construction of the project will not impair the movement of aquatic life.

A) **COMMITMENTS:**

- 1 **Design Build Commitments:** The NCDOT hereby commits to ensuring, to the greatest extent possible, that the footprint of the impacts in areas under the jurisdiction of the federal Clean Water Act will not be increased during the design build effort.
- 2 The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize wetland impacts and to provide full compensatory mitigation of all remaining wetland impacts. Avoidance measures were taken during the planning and NEPA phases; minimization measures were incorporated as part of the preliminary project design. The Design-Builder will incorporate these avoidance and minimization features plus any minimization identified during the 4B and 4C process into the design.
- 3 All wetland areas, surface waters, and buffer areas not affected by the project will be protected from unnecessary encroachment.
- 4 No staging of construction equipment, construction of haul roads or storage of construction supplies will be allowed in wetlands, riparian buffers or near surface waters.
- 5 **High Quality Waters BMP:** NCDOT has committed (ROD) that construction related impacts associated with the proposed action will be minimized through the use of High Quality Waters erosion and sediment control measures. The Design Builder's plans must also reflect these details.
- 6 **Slopes:** Fill slopes in wetlands must be at a 2:1 ratio.
- 7 **Ditching:** It is the policy of the NCDOT to eliminate lateral ditching in wetlands as much as possible, thus preserving the hydrology of adjacent wetlands. The Design Builder's plans must also respect this policy. Issuance of the environmental authorization will require the elimination of ditches in wetlands, waters, and buffers to the maximum extent possible. In addition, wherever ditches are proposed the Design Builder must conduct studies using approved modeling techniques to determine the effect of the ditches on the nearby wetlands.
- 8 **Median Width:** The project was designed using a 46-foot median width. The Design Builder must not use median spacing greater than 46 feet in width in jurisdictional areas.
- 9 As previously mentioned the Design-Builder is responsible for preparation of the Neuse Buffer Addendum. The designs and parameters presented in that document will be followed by the Design-Builders.

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- 10 All work by the Design-Builder must be accomplished in strict compliance with the plans submitted with the Section 404, 401 and Neuse Buffer permit applications and in compliance with all conditions of the permits and certifications issued by the agencies.
- 11 Appropriate sediment and erosion control practices which exceed or equal those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" (available from the Division of Land Resources in the DENR Regional or Central Offices) shall be utilized to prevent exceedances of the appropriate turbidity water quality standard (50 NTUs in all fresh water streams and rivers not designated as trout waters; 25 NTUs in all lakes and reservoirs, and all saltwater classes; and 10 NTU's in trout waters).
- 12 All sediment and erosion control measures placed in wetlands or waters shall be removed and the natural grade restored after the Division of Land Resources has released the project.
- 13 Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened.
- 14 The Design-Builders and/or agents shall not excavate, fill, or perform mechanized land clearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by the permits. There shall be no excavation from or waste disposal into jurisdictional wetlands, buffers, streams or waters of any kind associated with these permits without appropriate modification of these permits.
- 15 To ensure that all borrow and waste activities occur on high ground, except as authorized by the permits, the Design-Builders and/or agents must identify all areas to be used as borrow material or to be used for the disposal of dredged, fill, or waste material. The Design-Builders shall ensure that all such areas comply with the conditions of the permits. The Design-Builders shall be required to maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with all conditions of the permits above. *The Design-Builder shall obtain the services of a competent environmental consultant, who is knowledgeable of Clean Water Act, Neuse River Riparian Buffer and Endangered Species Act laws and rules. Consultant must be capable of conducting scientifically sound field investigations to determine the presence of (and to map the extent of) wetlands, streams and federally listed endangered, threatened and proposed species in borrow, waste and staging areas that occur outside the construction limits of the project.*
- 16 The Design-Builders and/or agents must comply with the terms and conditions of all permits in the construction and maintenance of this project. The Design-Builders shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of the permits.

- 17 All fill material will be immediately stabilized and maintained to prevent sediment from entering adjacent waters or wetlands.
- 18 Prior to commencing construction the Design Builder shall forward the latest version of project construction drawings to the Corps of Engineers, Raleigh Regulatory Field Office NCDOT-Regulatory Project Manager and to the appropriate individual with the DENR – Division of Water Quality. Half-size drawings are acceptable.
- 19 The Design-Builder shall schedule an on-site pre-construction meeting, at a mutually agreeable time and date, between its representatives, the Department's representatives, and the Corps of Engineers, Raleigh Regulatory Field Office-NCDOT Regulatory Project Manager and the appropriate individual with the DENR – Division of Water Quality, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within the Department of the Army Permit. **The Design-Builder shall coordinate with the Department to ensure that the Corps of Engineers Project Manager and the appropriate DENR - Division of Water Quality representative have a minimum of thirty (30) days before the scheduled meeting to provide that individual with ample opportunity to schedule and participate in the required meeting.**
- 20 No excavated or fill material will be placed at any time in waters, buffers or wetlands outside the permitted construction areas, nor will it be placed in any location or in any manner so as to impair surface water flow into or out of any wetland area.
- 21 All fill material will be clean and free of any pollutants except in trace quantities. Metal products, organic materials, or unsightly debris will not be used.
- 22 **The Design Builder must stay out of all wetlands, riparian buffers, and streams in the adjacent TIP Project Number R-2547 and R-2000G.**

B) ARCHAEOLOGICAL SITES:

1. If the Design-Builder discovers any previously unknown historic or archeological remains while accomplishing the authorized work, he will immediately notify NCDOT Staff Archaeologist and/or NCDOT Project Development Engineer, as listed below, who will initiate the required State/Federal coordination.
2. All questions regarding these sites should be addressed to Mr. Matthew Wilkerson, NCDOT Staff Archaeologist (919) 715-1561 or Mr. Michael Penney, PE, NCDOT

WAKE

PERMITS:

The Design-Builder's attention is directed to the following permits which have been issued to the Department of Transportation by the authority granting the permits.

PERMIT**AUTHORITY GRANTING THE PERMIT**

Dredge and Fill and/or
Work in Navigable Waters

U. S. Army Corps of Engineers

Water Quality

Division of Environmental Management, DENR
State of North Carolina

The Design-Builder shall comply with all applicable permit conditions during construction of this project. Those conditions marked by * are the responsibility of the Department and the Design-Builder has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

Where construction moratoriums are contained in a permit condition which restricts the Design-Builder's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.



**DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS**

P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

April 25, 2002

Regulatory Division

Action ID. 200220819; TIP No.'s R-2547 & R-2641

Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North, Carolina 27699-1548

Dear Mr. Gilmore:

In accordance with the written request of October 19, 2001, and the ensuing administrative record, enclosed is a permit to authorize the discharge of dredged and fill material into waters of the United States, for construction of the US 64 Knightdale Bypass, extending from the I-440 Beltline in Raleigh to existing US 64 east of Knightdale (T.I.P. No. R-2547), and the connector to the future I-540 Northern Wake Expressway (T.I.P. No. R-2641), crossing the Neuse River, Crabtree Creek, Mango Creek, Poplar Creek, Marks Creek, unnamed tributaries, and adjacent wetlands, generally south of Knightdale, in Wake County, North Carolina.

If any change in the authorized work is required because of unforeseen or altered conditions or for any other reason, the plans revised to show the change must be sent promptly to this office. Such action is necessary, as revised plans must be reviewed and the permit modified.

Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

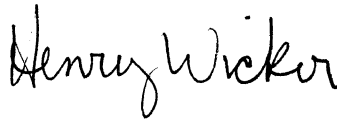
- a. You must complete construction before December 31, 2005.
- b. You must notify this office in advance as to when you intend to commence and complete work.
- c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

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Should you have questions, contact Mr. Eric Alsmeyer of my Raleigh Field Office regulatory staff at telephone (919) 876-8441, extension 23.

Sincerely,

for



James W. DeLony
Colonel, U.S. Army
District Engineer

Enclosures

Copy Furnished with enclosures:

Chief, Source Data Unit
NOAA/National Ocean Service
ATTN: Sharon Tear N/CS261
1315 East-West Hwy., Rm 7316
Silver Spring, MD 20910-3282

Copies Furnished with special conditions and plans:

Mr. Garland Pardue, Field Supervisor
U.S. Fish and Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Ron Sechler
National Marine Fisheries
Service, NOAA
Pivers Island
Beaufort, North Carolina 28516

Mr. David Rackley
National Marine Fisheries
Service, NOAA
219 Fort Johnson Road
Charleston, South Carolina 29412-9110

Mr. Ronald Mikulak, Chief
Wetlands Section - Region IV
Water Management Division
U.S. Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

Mr. Doug Huggett
Division of Coastal Management
North Carolina Department of
Environment and Natural Resources
1638 Mail Service Center
Raleigh, North Carolina 27699-1638

Mr. Ronald E. Ferrell, Program Manager
Wetlands Restoration Program
Division of Water Quality
North Carolina Department of
Environment and Natural Resources
1619 Mail Service Center
Raleigh, North Carolina 27699-1619

DEPARTMENT OF THE ARMY PERMIT

Permittee NC Department of Transportation

Permit No. 200220819

Issuing Office CESAW-RG-R

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Place fill material impacting a total of 27.43 acres of waters of the United States, including 12.97 acre of wetlands (including 0.02 acre of temporary impact), 13.76 acres of ponds, and 9,560 linear feet of stream, for construction the US 64 Knightdale Bypass, extending from the I-440 Beltline in Raleigh to existing US 64 east of Knightdale (T.I.P. No. R-2547), and the connector to the future I-540 Northern Wake Expressway (T.I.P. No. R-2641).

Project Location:

Crossing the Neuse River, Crabtree Creek, Mango Creek, Poplar Creek, Marks Creek, unnamed tributaries, and adjacent wetlands, generally south of Knightdale, in Wake County, North Carolina.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2005. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

See enclosed sheet.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

() Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

() Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

William D. Moore
(PERMITTEE)
NC DEPARTMENT OF TRANSPORTATION

22 APR 02
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

For Henry Wicker
(DISTRICT ENGINEER)
JAMES W. DELONY, COLONEL

25 APR 02
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFeree)

(DATE)

SPECIAL CONDITIONS (Action ID. 2002-2-0819; NCDOT/TIP R-2547/R-2641)

a. All work authorized by this permit must be prepared in strict compliance with the attached plans, which are a part of this permit.

b. The permittee shall mitigate for 12.95 acres of unavoidable impacts to wetlands, and 7,815 linear feet of impact to important streams, for the project, as described below (4.4 acres of wetland restoration at the Marks Creek, Phase II, mitigation site, 8.6 acres of wetland restoration at the Benson Grove Church Mitigation Site, 28.6 acres of wetlands preservation, along with upland buffer preservation, at the Mingo Creek mitigation site, 1,321 linear feet of onsite stream relocation, and 6,254 linear feet of stream mitigation and 83.75 acres of stream buffer mitigation through the North Carolina Wetlands Restoration Program (NCWRP), in the upper Neuse River basin (Cataloging Unit 03020201)).

MARKS CREEK WETLANDS RESTORATION

c. The permittee shall implement the compensatory wetland mitigation plan entitled "Stream and Wetland Mitigation Plan, Marks Creek, Phase II" dated September, 2001, to provide the restoration described in condition d. below.

d. The permittee shall mitigate for 2.2 acres of unavoidable impacts to wetlands associated with this project with 4.4 acres of wetland restoration, at the Marks Creek, Phase II Mitigation Site.

e. NCDOT will do a boundary survey of the 4.4 acres of wetland restoration at the Marks Creek, Phase II Mitigation Site, and submit a copy of the survey to the District Engineer within 90 days after construction of the site is completed.

f. The permittee will monitor the site vegetation between June 1 and November 30, inclusively, of each year, and document plant mortality and stress. A minimum of two 0.05 acre sample plots will be established within each planting zone, and will be placed randomly within representative positions in the restoration area. The permittee will continue monitoring of the planting areas annually until the respective performance criteria are met, as described below.

BENSON GROVE CHURCH WETLANDS RESTORATION

g. The permittee shall implement the compensatory wetland mitigation plan entitled "Benson Grove Church Wetland Mitigation Plan" dated October 4, 2001, to provide the restoration described in condition h. below.

h. The permittee shall mitigate for 4.3 acres of unavoidable impacts to wetlands associated with this project with 8.6 acres of wetland restoration, at the Benson Grove Church Mitigation Site.

i. NCDOT will do a boundary survey of the 8.6 acres of wetland restoration at the Benson Grove Church Mitigation Site, and submit a copy of the survey to the District Engineer within 90 days after construction of the site is completed.

j. The permittee will monitor the site vegetation between June 1 and November 30, inclusively, of each year, and document plant mortality and stress. A minimum of one 0.05 acre sample plot will be used, and will be placed randomly within a representative position in the 8.6 acre restoration area. The permittee will continue monitoring of the planting areas annually until the respective performance criteria are met, as described below.

MARKS CREEK AND BENSON GROVE CHURCH MITIGATION MONITORING

k. Performance criteria for tree planting areas will be met if sample plots demonstrate that for each of the first three complete years of monitoring, 320 target-species trees per acre have survived, such that at the end of three years, 320 three-year old target-species trees per acre have survived on the site, and, in years four and five, 288 and 260 trees per acre, respectively, have survived on the site, such that at the end of year five, 260 five-year old target-species trees per acre have survived on the site.

l. If for any monitoring year, vegetation survival is not favorable, as determined by the Corps of Engineers, any remedial action required by the Corps of Engineers will be performed, the required restoration areas will be replanted, and the five-year monitoring period will begin again with year one.

m. Hydrology in the restoration areas will be monitored through the use of monitoring gauges during each growing season for the first five years of the vegetative monitoring, or until performance criteria have been met, whichever occurs later. A minimum of 11 groundwater gauges, and 3 surface water gauges, will be used within the total wetland restoration/creation area at Marks Creek, Phase II, and a minimum of fourteen gauges will be used within the wetland restoration area at Benson Grove Church.

n. To meet the hydrology success criteria, the monitoring data must show that for each normal precipitation year within the monitoring period, the site has been inundated or saturated within the upper 12 inches of the soil for a minimum of 12.5% of the growing season (28 consecutive days for Wake County; 29 consecutive days for Johnston County). WETS tables for Wake County and Johnston County will be utilized as appropriate to determine normal precipitation years.

o. If there are no normal precipitation years during the first five years of monitoring, to meet performance criteria, the permittee will continue to monitor hydrology on the site until it shows that the site has been inundated or saturated as described above during a normal precipitation year.

p. In the alternative, and at the Corps' discretion, a site may be found to meet the hydrology performance criteria on the basis of comparison of monitoring data taken from the site with monitoring data taken from an established jurisdictional mitigation reference site approved by the Corps. The Corps retains the discretion to find that the hydrology criteria are met if such monitoring data from the mitigation site and the reference site are substantially the same. This finding by the Corps may be made during years with or without normal rainfall.

q. In the event there are years of normal precipitation during the monitoring period, and the data for those years do not show that the site has been inundated or saturated within the upper 12 inches of the soil for a minimum of 12.5 % of the growing season (28 or 29 consecutive days) during a normal precipitation year, the Corps may require remedial action. The permittee shall perform such required remedial action, and continue to monitor hydrology on the site until it displays that the site has been inundated or saturated as described above, during a normal precipitation year. If the Corps determines that further remediation is not appropriate, other options will be considered, including use of a different site to mitigate for project impacts.

r. The permittee will submit yearly mitigation monitoring reports by the first day of February after each assessment period, for five years following final site manipulation. These reports will include, at a minimum, sample plot, well and rainfall data; number of individuals of each tree species within each sample plot; photographs, including a location key; and problems/resolution, and will be provided to both the Corps and the North Carolina Division of Water Quality.

MINGO CREEK WETLANDS PRESERVATION

s. The permittee shall implement the compensatory wetland mitigation plan entitled "Restoration and Conservation Management Plan for the Mingo Creek Mitigation Site" dated September, 2001, to provide the preservation described in condition d. below.

t. The permittee shall mitigate for 6.5 acres of unavoidable impacts to wetlands associated with this project with 28.6 acres of wetland preservation, and additional upland buffer preservation, at the Mingo Creek Mitigation Site.

u. NCDOT will do a boundary survey of the 205 acres of wetland preservation and upland buffer preservation at the Mingo Creek Mitigation Site, and submit a copy of the survey to the District Engineer within 90 days after this permit is issued.

GENERAL WETLANDS MITIGATION

v. All site preparation activities at the Marks Creek and Benson Grove Church Mitigation Sites shall be completed by March 15, 2003. An "as built" plan, which describes the completed mitigation project, including variations from the original plan, location of sample plots, location of monitoring gauges, final project elevations, and photographs, including a location key, shall be submitted to the District Engineer within 60 days of wetland mitigation planting.

w. The permittee and subsequent property owners shall maintain the Marks Creek, Benson Grove Church and Mingo Creek Mitigation Sites in their natural condition, as altered by work in the mitigation plans, in perpetuity. Prohibited activities within the mitigation sites specifically include, but are not limited to: the construction or placement of roads, walkways, buildings, signs, or structures of any kind (i.e., billboards, interior fences, etc.); filling, grading, excavation, leveling, or any other earth moving activity or activity that may alter the drainage patterns on the property; the cutting, mowing, destruction, removal, or other damage of any vegetation; disposal or storage of any debris, trash, garbage, or other waste material; except as may be authorized by the mitigation plans, or subsequent modifications that are approved by the Corps of Engineers. In addition, the permittee shall take no action, whether on or off the mitigation properties, which will adversely impact the wetlands on the mitigation properties, except as specifically authorized by this permit, or subsequent modifications that are approved by the Corps of Engineers.

x. The permittee shall make every effort to convey the Marks Creek, Benson Grove Church and Mingo Creek Mitigation Site properties to a nonprofit conservation organization or a natural resource agency, which is willing to hold the areas in perpetuity for conservation purposes, and which is acceptable to the Corps of Engineers. The annual monitoring reports, as required, will include the status of the conveyance efforts.

y. The permittee shall not sell or otherwise convey any interest in the properties used to satisfy mitigation requirements for this permit, to any third party, without 10 days prior notification to Wilmington District Corps of Engineers in writing, which writing shall reference this permit Action ID number.

z. Any sale, lease, or other conveyance of the mitigation site properties shall include restrictions on the use of the properties as described in condition y. above, which conditions shall be enforced by the North Carolina Department of Transportation. Such restrictions shall include language providing for third party enforcement rights in favor of the Corps of Engineers. Such restrictions must be approved prior to conveyance by the Corps of Engineers.

ONSITE STREAM RELOCATION

aa. The permittee shall mitigate for 1,321 linear feet of unavoidable impacts to important stream channel associated with this project by completing 1,321 linear feet of onsite stream relocation, as described in the permit application. The stream relocation shall be constructed in accordance with the North Carolina Wildlife Resources Commission's (NCWRC) "Stream Relocation Guidelines", and with the attached permit drawings. NCDOT shall consult with NCWRC on all stream relocations and implement all practicable recommendations in the design of specific site requirements for re-establishment of bank vegetation, and placement of meanders and habitat structures. Vegetation shall be used to the maximum extent practicable to stabilize banks, and riprap and other man-made structural measures shall be minimized. The relocations will be constructed in a dry work area, and NCDOT shall ensure that the stream channel is sufficiently stabilized prior to the diversion of water into the new channel.

bb. The permittee shall visually monitor the vegetative plantings on all mitigation stream banks to assess and insure complete stabilization of the mitigation stream segments. This monitoring shall include adequate visual monitoring of planted vegetation quarterly for a minimum of two years after final planting, and appropriate remedial actions (e.g., replanting, streambank grading, etc.). If within any monitoring year, bank stabilization is not acceptable as determined by the Corps of Engineers, and remedial action required by the Corps of Engineers is performed, the two year monitoring of the affected portions of the stream will begin again. The permittee will coordinate stream mitigation activities with the Corps of Engineers, Raleigh Regulatory Field Office Project Manager, and will report verbally on the status of the stream mitigation within thirty days of the quarterly monitoring. The permittee will submit a brief written report with representative photographs within 90 days after the monitoring year is completed.

NCWRP STREAM MITIGATION

cc. The permittee shall mitigate for 6,254 linear feet of unavoidable impacts to important stream channel associated with this project by payment to the North Carolina Wetlands Restoration Program (NCWRP) in an amount determined by the NCWRP sufficient to perform 6,254 linear feet of warm water stream mitigation, or the equivalent water quality improvement projects, as approved by the Corps of Engineers, and 83.75 acres of stream buffer mitigation, in the upper Neuse River basin (Cataloging Unit 03020201). Construction within streams on the permitted highway project shall begin only after the permittee has made full payment to the NCWRP, and the NCWRP has made written confirmation to the District Engineer, that it agrees to accept responsibility for the mitigation work required, pursuant to Paragraph IV.D. of the Memorandum of Understanding between the North Carolina Department of Environment and Natural Resources and the U.S. Army Corps of Engineers, Wilmington District, dated November 4, 1998.

GENERAL MITIGATION

dd. The permittee shall contact the Corps of Engineers, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager for this project, to provide that individual with the opportunity to attend the yearly mitigation monitoring efforts.

ee. Failure to institute and carry out the details of special conditions a. - dd., above, will result in a directive to cease all ongoing and permitted work within waters and/or wetlands associated with the permitted project, or such other remedy as the District Engineer or his authorized representatives may seek.

OTHER CONDITIONS

ff. When final design plans are completed for TIP R-2641 (Eastern Wake Expressway from existing US 64 to US 64 Bypass), any necessary permit modifications shall be submitted to the District Engineer and the North Carolina Division of Water Quality (NCDWQ). If necessary, a public notice will be circulated for review. Final designs shall reflect all appropriate avoidance, minimization, and a compensatory mitigation plan for impacts within streams and wetlands. Construction within streams and wetlands on TIP R-2641 shall begin only after approval by the District Engineer of the modified impacts.

gg. NCDOT shall use "High Quality Waters" sedimentation and erosion control measures throughout the entire project.

hh. Prior to commencing construction within jurisdictional waters of the United States, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings are acceptable.

ii. The permittee shall schedule a meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands, to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall notify the Corps of Engineers Project Manager a minimum of thirty (30) days in advance of the scheduled meeting in order to provide that individual with ample opportunity to schedule and participate in the required meeting.

jj. The permittee and its contractors and/or agents shall not excavate, fill, or perform mechanized landclearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by this permit, or any modification to this permit.

There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and fill activities connected with this project.

kk. To ensure that all borrow and waste activities occur on high ground, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall ensure that all such areas comply with the preceding condition (jj.) of this permit, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the preceding condition (jj.). All information will be available to the Corps of Engineers upon request.

ll. The permittee shall comply with the conditions specified in the water quality certification, No. 3377, issued by the North Carolina Division of Water Quality on April 10, 2002.

mm. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard (50 NTU's in all streams and rivers, and 25 NTU's in all lakes).

nn. The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

oo. The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

pp. The permittee shall ensure compliance with the stipulations (excepting stipulations 5 and 6) set forth in the Memorandum of Agreement (MOA) between the Federal Highway Administration, the North Carolina State Historic Preservation Officer, and the North Carolina Department of Transportation. The permittee shall complete the requirements of the stipulations of the MOA prior to completion of construction of that section of the highway project which affects the particular archaeological sites; A copy of the Memorandum of Agreement is attached.

qq. If the permittee discovers any previously unknown historic or archeological remains while accomplishing the authorized work, he will immediately notify the Wilmington District Engineer who will initiate the required State/Federal coordination.

rr. No excavated or fill material will be placed at any time in waters or wetlands outside the permitted construction areas, nor will it be placed in any location or in any manner so as to impair surface water flow into or out of any wetland area.

ss. The permittee will maintain the authorized work in good condition and in conformance with the terms and conditions of this permit. The permittee is not relieved of this requirement if he abandons the permitted activity without transferring it to a third party.

tt. All fill material will be clean and free of any pollutants except in trace quantities. Metal products, organic materials, or unsightly debris will not be used.

uu. This Department of the Army permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

vv. This permit does not grant any property rights or exclusive privileges.

ww. In issuing this permit, the Federal Government does not assume any liability for:

1. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
2. Damages to the permitted project or uses thereof as a result of current or future Federal activities initiated on behalf of the general public.
3. Damages to other permitted or unpermitted activities or structures caused by the authorized activity.
4. Design and construction deficiencies associated with the permitted work.
5. Damage claims associated with any future modification, suspension, or revocation of this permit.

**MEMORANDUM OF AGREEMENT
FOR RECOVERY OF SIGNIFICANT INFORMATION FROM
ARCHAEOLOGICAL SITES 31WA1338, 31WA1352, 31WA1360, 31WA1391
US 64 BYPASS From I-440 to US 64 west of Wendell and Eastern Wake
Expressway from Existing US 64 to SR 1007 (Poole Road)
TIP No. R-2547/R-2641
State Project No. 8.1402202, Federal Project No. MAF-36-1 (33)
Wake County, North Carolina**

Whereas, in accordance with 36 CFR Part 800, the Federal Highway Administration (FHWA) acknowledges and accepts the advice and conditions outlined in the Advisory Council on Historic Preservation's (Council) "Recommended Approach for Consultation on the Recovery of Significant Information from Archaeological Sites," published in the Federal Register (FR Doc. 99-12055) on May 17, 1999; and

Whereas, the consulting parties agree that recovery of significant information from the archaeological sites listed above may be done in accordance with the published guidance; and

Whereas, the consulting parties agree that it is in the public interest to expend funds for the recovery of significant information from these archaeological sites to mitigate the adverse effects of the project; and

Whereas, the consulting parties concur that no Indian Tribes or Native Hawaiian organizations attach religious or cultural importance to the affected property and no objections from such groups have been raised to the work proposed; and

Whereas, no human remains, associated or unassociated funerary objects or sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001), are expected to be encountered in the archaeological work;

Now, therefore, the FHWA shall ensure that the following terms and conditions will be implemented in a timely manner and with adequate resources in compliance with the National Historic Preservation Act of 1966 (16 U.S.C. 470).

Stipulations

1. FHWA will develop Data Recovery Plans for each site affected by the subject project in consultation with the North Carolina State Historic Preservation Officer (NCSHPO).
2. FHWA will ensure that the sequence of the four Data Recovery investigations will be established in consultation with the NCSHPO.
3. FHWA will ensure that the Data Recovery investigations will be completed after right of way acquisition and prior to construction activities within each sites location as shown in Appendix A.

4. Upon completion of the data recovery efforts for each site, FHWA will prepare and forward a management summary to the North Carolina State Historic Preservation Officer (NCSHPO) detailing the results of the data recovery field investigations. The management summary will contain sufficient information to demonstrate that the field investigation portion of the data recovery plan has been implemented.
5. Upon receipt of the management summary the NCSHPO will respond within 10 days to the recommendations contained within the document.
6. Upon acceptance of the recommendations contained in the Management summary, the NCSHPO will issue FHWA documentation that the data recovery field investigations have been completed.
7. The analysis and individual report preparation detailing sites 31WA1338, 31WA1352, 31WA1360 and 31WA1391 will be completed by FHWA within 12 months after completion of the field work.

OTHER TERMS AND CONDITIONS:

Modification, amendment, or termination of this agreement as necessary shall be accomplished by the signatories in the same manner as the original agreement. Disputes regarding the completion of the terms of this agreement shall be resolved by the signatories. If the signatories cannot agree regarding a dispute, any one of the signatories may request the participation of the Council to assist in resolving the dispute.

This agreement shall be null and void if its terms are not carried out within 5 (five) years from the date of its execution, unless the signatories agree in writing to an extension for carrying out its terms.

Federal Highway Administration Official

for Michael C. Dawson Date 7/17/01
Nicholas L Graf, Division Administrator

North Carolina State Historic Preservation Officer

Jeffrey J. Crow Date 10/8/01
Jeffrey J. Crow, State Historic Preservation Officer

North Carolina Department of Transportation

William D. Gilmore Date: _____
William D. Gilmore, PE, Manager
Project Development and Environmental Analysis Branch

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

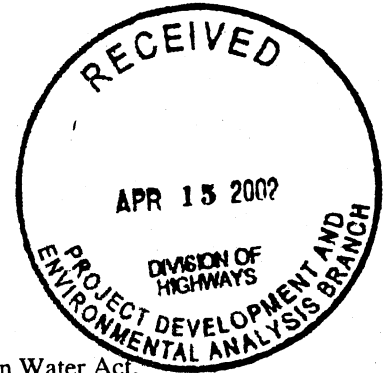
Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director

April 10, 2002

Mr. William D. Gilmore, P.E., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Dear Mr. Gilmore:

Re: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act,
Proposed US 64v Bypass of Knightdale from I-440 (Raleigh Beltline) to existing US 64 near SR
1003, I-440 from 0.83 miles south of US 64 to Poole Road and a portion of the East Wake
Expressway from existing US 64 to the proposed US 64 Bypass in Wake County (TIP R-2547).
WQC Project No. 011689



Attached hereto is a copy of Certification No. 3377 issued to The North Carolina Department of Transportation dated April 4, 2002. You have our approval, in accordance with the attached conditions and those listed below, to place fill material in 12.95 acres of jurisdictional wetlands, 9560 linear feet of streams, and 40.56 acres of protected Neuse River Riparian Buffers. In addition, you are authorized to perform mechanized clearing in 0.2 acres of jurisdictional wetlands. The project shall be constructed in accordance with your application dated October 19, 2001, and the subsequent addendums dated November 9, 2001, and April 2, 2002. Any proposed site plans submitted in the October 19, 2001 application that have a subsequent revised site plan submitted in the November 9, 2001, or April 2, 2002 addendums are not authorized by this certification. Instead, for all impacts where a proposed site design as provided in the original October 19, 2001 application was revised and submitted in the November 19, 2001 and April 2, 2002 addendums, the drawings with the latest date of revision are authorized. The purpose of the authorized impacts is the construction of the US 64 bypass of Knightdale and a portion of the East Wake Expressway (Future I-540 Outer Loop) from existing US 64 to the proposed US 64 bypass in Wake County. This certification supercedes the 401 Water Quality Certification approved on April 5, 2002.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Gregory J. Thorpe, Ph.D.
Acting Director

Wetlands/401 Unit

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Raleigh, North Carolina 27699-1621

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Department of Environment
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Division of Water Quality



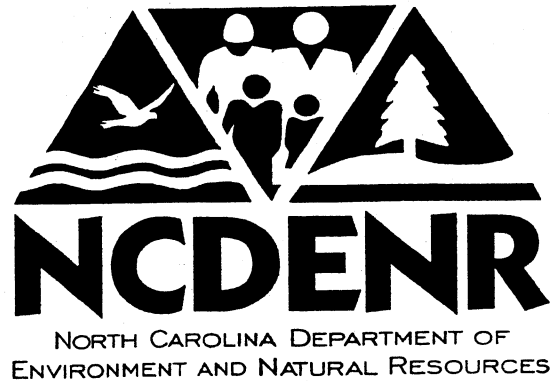
Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director

Attachments

cc: Wilmington District Corps of Engineers
Corps of Engineers Raleigh Field Office
DWQ Raleigh Regional Office
Ron Ferrell, Wetlands Restoration Program
Central Files
File Copy

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director



**APPROVAL OF 401 Water Quality Certification and ADDITIONAL CONDITIONS
and Neuse River Buffer Rules**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15A NCAC 2H, Section .0500, and 15A NCAC 2B .0233. This certification authorizes, in accordance with the attached conditions and those listed below, the placement of fill material in 12.95 acres of jurisdictional wetlands, 9560 linear feet of streams, and 40.56 acres of protected Neuse River Riparian Buffers. In addition, you are authorized to perform mechanized clearing in 0.2 acres of jurisdictional wetlands. The project shall be constructed in accordance with your application dated October 19, 2001, and the subsequent addendums dated November 9, 2001, and April 2, 2002. Any proposed site plans submitted in the October 19, 2001 application that have a subsequent revised site plan submitted in the November 9, 2001, or April 2, 2002 addendums are not authorized by this certification. Instead, for all impacts where a proposed site design as provided in the original October 19, 2001 application was revised and submitted in the November 19, 2001 and April 2, 2002 addendums, the drawings with the latest date of revision are authorized. The purpose of the authorized impacts is the construction of the US 64 bypass of Knightdale and a portion of the East Wake Expressway (Future I-540 Outer Loop) from existing US 64 to the proposed US 64 bypass in Wake County. This certification supercedes the 401 Water Quality Certification approved on April 5, 2002.

The application provides adequate assurance that the discharges of fill material into the waters of the Neuse River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application, as described in the Public Notice. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. Any additional impacts to wetlands, streams, or buffers, for this project (now or in the future) will require additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7), and 15A NCAC 2B .0233. For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire three years from the date of the cover letter from DWQ or on the same day as the expiration date of the corresponding Corps of Engineers Permit, whichever is sooner.

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

Condition(s) of Certification:

1. Appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" or the "North Carolina Surface Mining Manual" whichever is more appropriate (available from the Division of Land Resources (DLR) in the DENR Regional or Central Offices) shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standard (50 NTUs in all fresh water streams and rivers not designated as trout waters; 25 NTUs in all lakes and reservoirs, and all saltwater classes; and 10 NTUs in trout waters);
2. Sediment and erosion control measures shall not be placed in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored after the Division of Land Resources has released the project;
3. If an environmental document is required, this Certification is not valid until a FONSI or ROD is issued by the State Clearinghouse. All water quality-related conditions of the FONSI or ROD shall become conditions of this Certification;
4. Measures shall be taken to prevent live or fresh concrete from coming into contact with waters of the state until the concrete has hardened;
5. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit. Should waste or borrow sites be located in wetlands or stream, compensatory mitigation will be required since it is a direct impact from road construction activities.
6. All channel relocations will be constructed in a dry work area, and stabilized before stream flows are diverted. Channel relocations will be completed and stabilized prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30 foot wide wooded and an adjacent 20 foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating coir fiber and seedling establishment is allowable. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested.
7. Compensatory mitigation for impacts to streams shall be done for 7122 linear feet of stream impact at a replacement ratio of 1:1. Compensatory mitigation for impacts to jurisdictional streams shall be provided by onsite stream relocations of 1321 linear feet of streams on site as described (i.e. a stable stream pattern, dimension, and profile) in the March 24, 2000 revised permit application. Of the 1321 linear feet of total proposed onsite mitigation, 787 linear feet is located at Site 4 in Segment CC (between stations 155+00 and 157+00) of the project. No

Wetlands/401 Unit

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NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director

impacts to Site 4 in Segment CC of the projects are authorized until a final design that provides a stable stream pattern, dimension, and profile is submitted to and approved in writing by the NC Division of Water Quality 401 Wetlands Unit. All stream relocations shall have 50-foot wooded buffers planted on both sides of the stream. As-Builts for the completed streams shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit within 30 days of the completion of the construction of the relocations. If the parameters of this condition are not met, then the NCDOT shall supply additional stream mitigation for the 787 linear feet of impacts. In addition to the 1321 linear feet of on-site mitigation, compensatory mitigation for an additional 5801 linear feet of streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through an in lieu payment to the North Carolina Wetland Restoration Program (NCWRP), and that the WRP has agreed to implement the mitigation for the project. Mitigation for unavoidable impacts to streams shall be provided through an in-lieu payment to the North Carolina Wetlands Restoration Program (NCWRP) at a rate of \$125 per linear foot. Therefore, a total payment of \$725,125 shall be submitted to the NCWRP to offset the impacts. No construction activities in jurisdictional streams shall begin until payment for stream mitigation is made and the Wetland Restoration Program receives and clears your check (made payable to DENR – Wetland Restoration Program). The payment to NCWRP shall be sent within two months of issuance of the 404 permit. If you have any questions concerning the Wetland Restoration Program please contact them at 919-733-5208.

8. Compensatory mitigation for impacts to wetlands shall be done for 12.95 acres of impacts. Applying a replacement ration of 2:1 total mitigation for 25.90 acres of riparian wetlands shall be provided as described below.

Mitigation Site	Acres of WL Debited from Site	Type of Mitigation	Replacement Ratio	Acres of Mitigation Credited
Benson Grove Mitigation Site	8.55	Restoration	1:1	8.55
Mingo Creek Mitigation Site	28.6	Preservation	1.9:1	14.95
Marks Creek Mitigation Site	4.40	Restoration	1:1	4.40
Total				25.90

9. All stormwater runoff shall be directed to sheetflow through stream buffers at nonerosive velocities, unless approved otherwise by this certification.

Wetlands/401 Unit

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Division of Water Quality

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10. Of the total 40.56 acres of impacts to protected riparian buffers, compensatory mitigation for impacts to 34.69 acres of Neuse Riparian Buffers shall be provided for as described below.

Zone of Impact	Impacts (Acres)	Replacement Ratio	Total Acres of Mitigation Required
Zone 1	21.14	3:1	63.42
Zone 2	13.55	1.5:1	20.33
Total			83.75

We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through an in lieu payment to the North Carolina Wetland Restoration Program (NCWRP), and that the WRP has agreed to implement the mitigation for the project. Mitigation for unavoidable impacts to Neuse Riparian Buffers shall be provided through an in-lieu payment to the North Carolina Wetlands Restoration Program (NCWRP) at a rate of \$41,625 per acre for 83.75 acres of buffer impact. Therefore, a total payment of \$3,486,094 shall be submitted to the NCWRP to offset the impacts. No construction activities in Neuse River Riparian buffers shall begin until payment for buffer mitigation is made and the Wetland Restoration Program receives and clears your check (made payable to DENR – Wetland Restoration Program). The payment to NCWRP shall be sent within two months of issuance of the 404 permit. If you have any questions concerning the Wetland Restoration Program please contact them at 919-733-5208.

11. Upon completion of the project, the NCDOT shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed. The responsible party shall complete the attached form and return it to the 401/Wetlands Unit of the Division of Water Quality upon completion of the project.
12. Placement of culverts and other structures in waters, streams, and wetlands must be placed below the elevation of the streambed to allow low flow passage of water and aquatic life unless it can be shown to DWQ that providing passage would be impractical. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or stream beds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium shall be maintained if requested in writing by DWQ.
13. No changes to the horizontal or vertical placement of the stormwater outfall locations, the horizontal or vertical placement of the culverts, the horizontal or vertical placement of bridges, the horizontal or vertical placement of grassed swales, or the horizontal or vertical placement of open ditches is permitted without written approval from the NC Division of Water Quality 401 Wetlands Unit. In addition, no changes to the flow spreader locations or designs, preformed scour hole locations or designs are permitted without written approval from the NC Division of Water Quality 401 Wetlands Unit. Any request for changes to the referenced items above will require submittal of a modification request, with seven copies, and corresponding fees will need to be submitted to the North Carolina Division of Water Quality.

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NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director

14. When final design plans are completed for the section of the East Wake Expressway (R-2641, Future I-540 Outer Loop) from existing US 64 to the proposed US 64 bypass located in Wake County, a modification to the 401 Water Quality Certification shall be submitted with seven copies and fees to the NC Division of Water Quality. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. Construction activities that impact any wetlands, streams, and other surface waters, or buffers located in the referenced section shall begin only after NCDOT applies for and receives a modified 401 Water Quality Certification from the NC Division of Water Quality. This condition does not apply to the proposed interchange of project R-2641 and R-2547, it is approved as described previously in this certification.
15. No construction activities are authorized for the project until NCDOT provides and gets written approval from the NC Division of Water Quality for appropriate engineering construction details for all proposed level spreaders and pre-formed scour holes in Segment CC of the project.
16. No construction activities are authorized in segment CC of the project until a final design that provides a stable stream pattern, dimension, and profile for the proposed stream relocation from station 155+00 to 157+00 is submitted by NCDOT, and approved by the NC Division of Water Quality 401 Wetlands Unit.
17. Given the multiple set of addendums to the original application, NCDOT shall provide to the NCDWQ a final of site drawings within 2 months of the date of issuance of the 401 Water Quality Certification that reflects the authorized impacts in this certification.

Violations of any condition herein set forth shall result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, P.O. Box 27447, Raleigh, N.C. 27611-7447. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 10th day of April 2002
DIVISION OF WATER QUALITY

Gregory J. Thorpe, Ph.D.
Acting Director

WQC No. 3377

Wetlands/401 Unit

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Raleigh, North Carolina 27699-1621

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Division of Water Quality



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director

DWQ Project No.: _____

County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

***Certificate of Completion**

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401/Wetlands Unit, North Carolina Division of Water Quality, 1621 Mail Service Center, Raleigh, NC, 27699-1621. This form may be returned to DWQ by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: _____ Date: _____

Engineer's Certification

_____ Partial _____ Final

I, _____, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____

Date _____

State of North Carolina
Department of Environment
and Natural Resources
Division of Water Quality



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

Michael F. Easley, Governor
William G. Ross, Jr., Secretary
Gregory J. Thorpe, Ph.D., Acting Director

**NORTH CAROLINA - DIVISION OF WATER QUALITY
401 WATER QUALITY CERTIFICATION
SUMMARY OF PERMITTED IMPACTS AND MITIGATION REQUIREMENTS**

In accordance with 15A NCAC 2H.0500, the North Carolina Department of Transportation is authorized to impact the waters of the State of North Carolina as indicated below for the purpose of constructing the US 64 bypass of Knightdale from I-440 (Raleigh Beltline) to existing US 64 near SR 1003, I-440 from 0.83 miles south of US 64 to Poole Road and a portion of the East Wake Expressway from existing US 64 to the proposed US 64 Bypass in Wake County (TIP R-2547), WQC Project No. 011689. All activities associated with these authorized impacts must be conducted in accordance with the conditions listed in the attached certification transmittal letter. **THIS CERTIFICATION IS NOT VALID WITHOUT THE ATTACHMENTS.**

COMPENSATORY MITIGATION REQUIREMENTS FOR WETLAND RESTORATION:

LOCATION: US 64 bypass of Knightdale in Wake County
COUNTY: Wake
BASIN/SUBBASIN: Cape Fear, Cataloging Unit 03020201
DWQ No.: 011689

As required by 15A NCAC 2H.0506, and the conditions of this certification, you are required to compensate for the above impacts through the restoration, creation, enhancement or preservation of wetlands and surface waters as outlined below prior to conducting any activities that impact or degrade waters of the state. Note: Acreage requirements proposed to be mitigated through the Wetland Restoration Program must be rounded to one-quarter increments according to 15A 2R.0503(b).

5801 linear feet of stream channel

83.75 acres of Neuse River Riparian Buffers

One of the options you have available to satisfy the compensatory mitigation requirements is through payment of a fee to the Wetland Restoration Fund per 15A NCAC 2P.0503. If you choose this option, please sign this form and mail it to the Wetlands Restoration Fund at the address listed below. An invoice for the appropriate amount of payment will be sent to you upon receipt of this form. **PLEASE NOTE, THE ABOVE IMPACTS ARE NOT AUTHORIZED UNTIL YOU RECEIVE NOTIFICATION THAT YOUR PAYMENT HAS BEEN PROCESSED BY THE WETLANDS RESTORATION PROGRAM.**

Signature

Date

**WETLANDS RESTORATION PROGRAM
DIVISION OF WATER QUALITY
P.O. BOX 29535
RALEIGH, NC, 27626-0535
(919) 733-5208**

Wetlands/401 Unit

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Raleigh, North Carolina 27699-1621

Telephone 919-733-1786

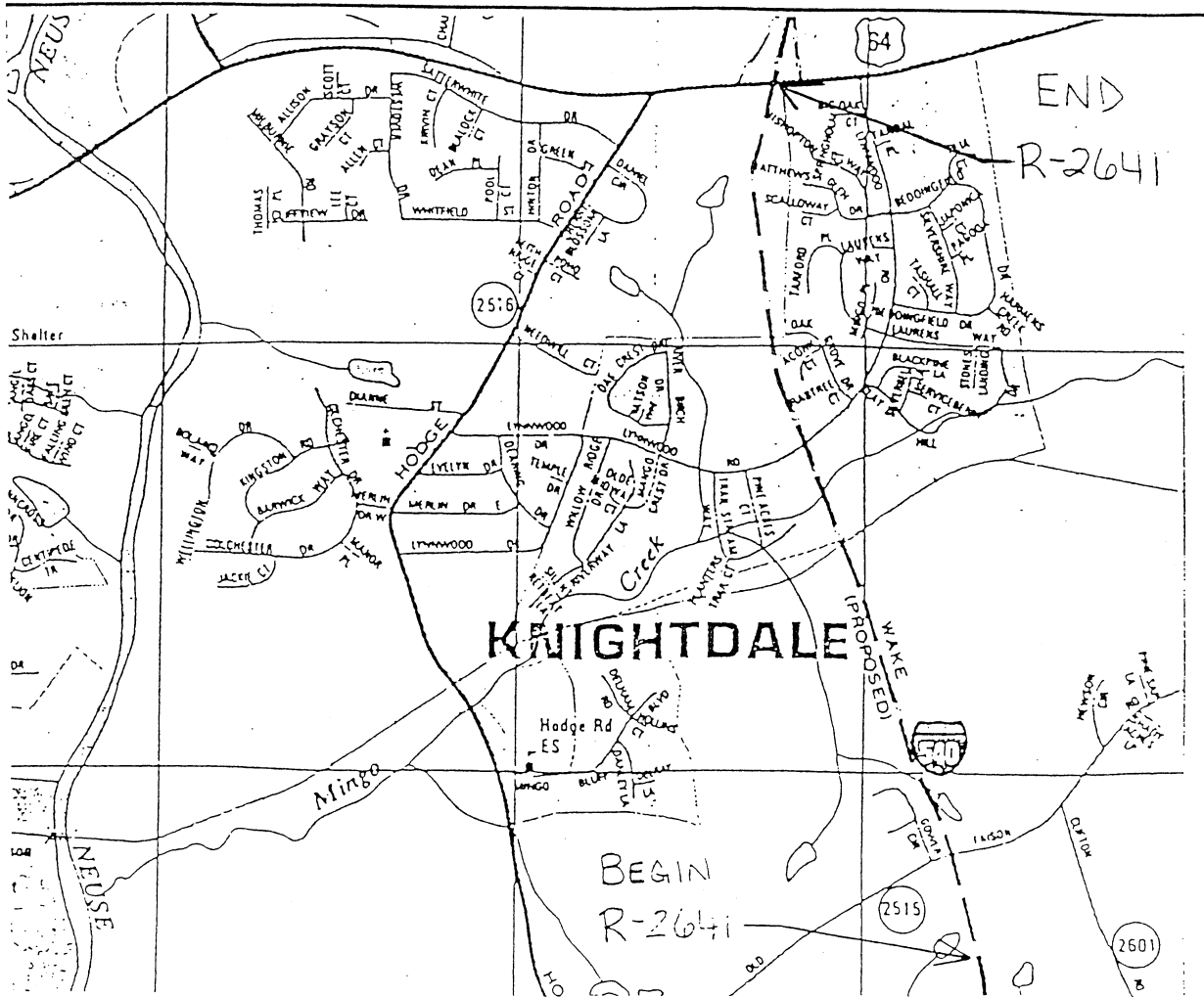
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NORTH CAROLINA

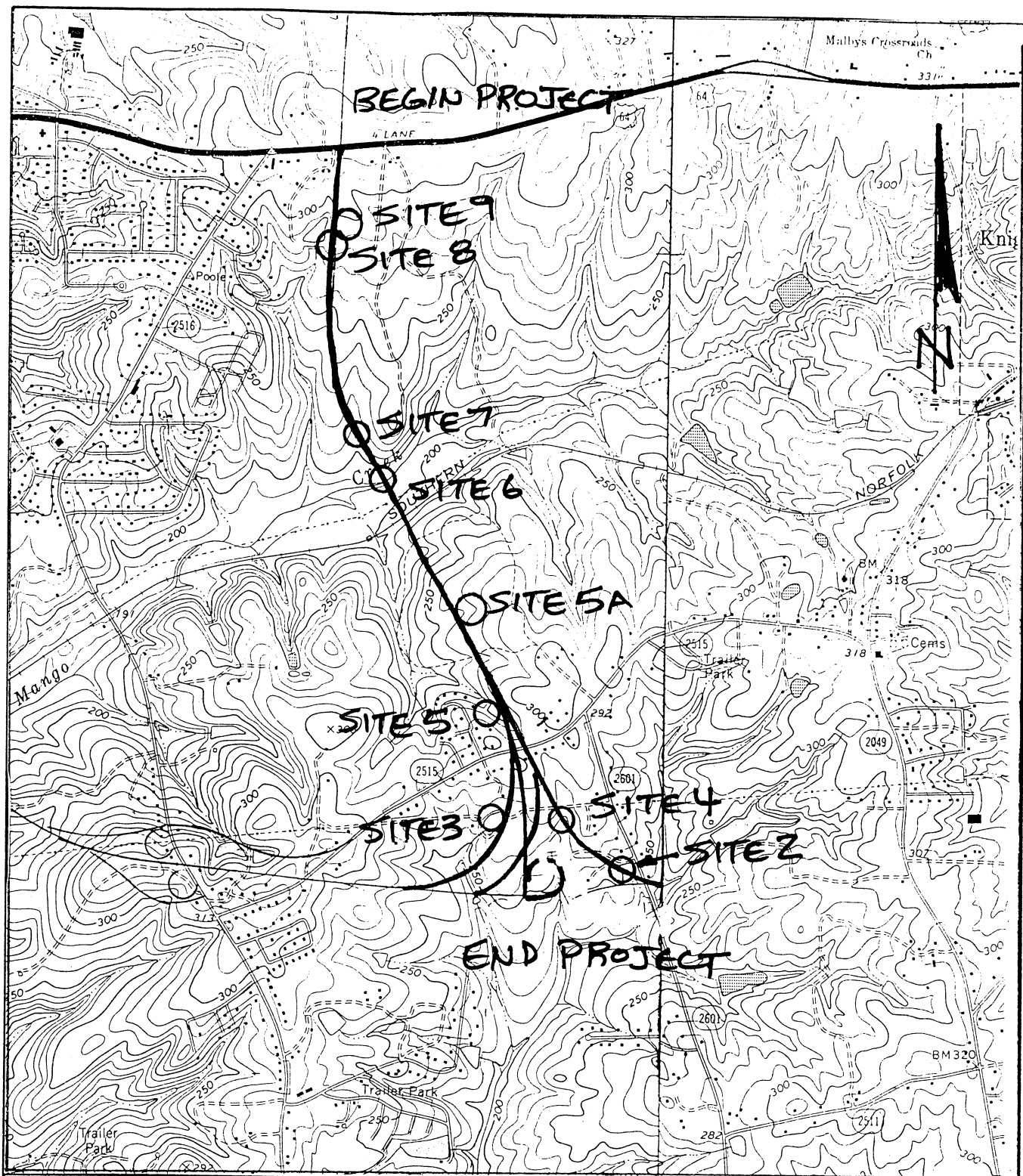


VICINITY MAP

65-2

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

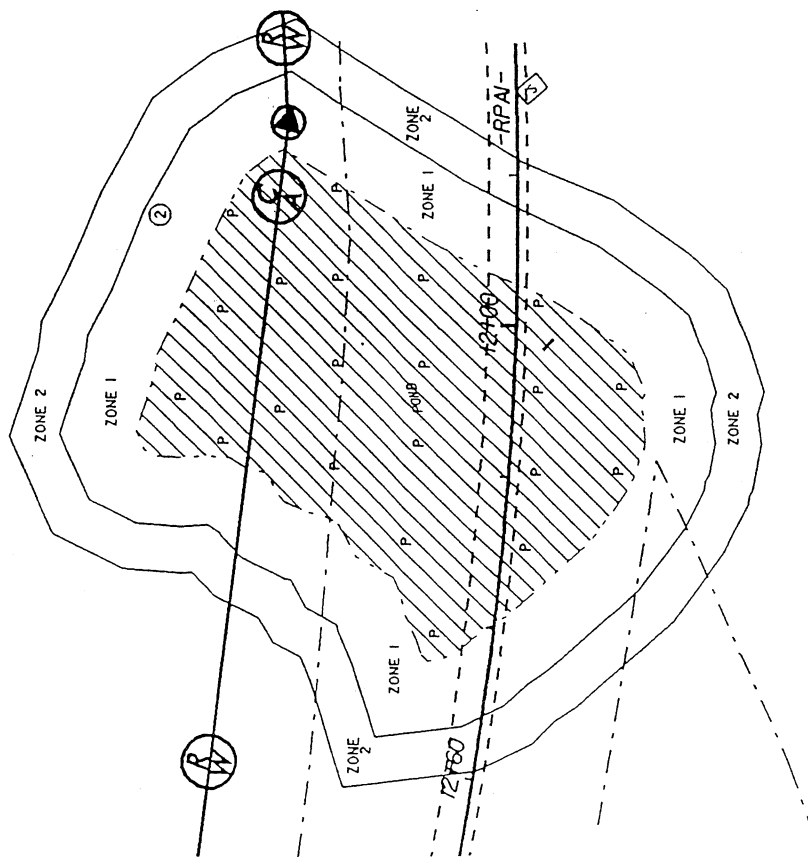
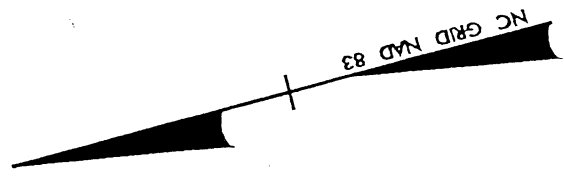
PROJECT: 8.2404601 (R-2641)
EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST
SHEET 1 OF 16 6/6/2000



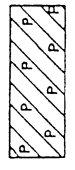
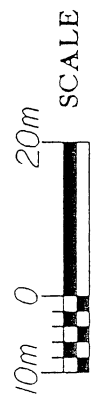
SITE MAP

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.2404601 (R-2641)
EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST

SHEET OF 6 / 22 / 2001

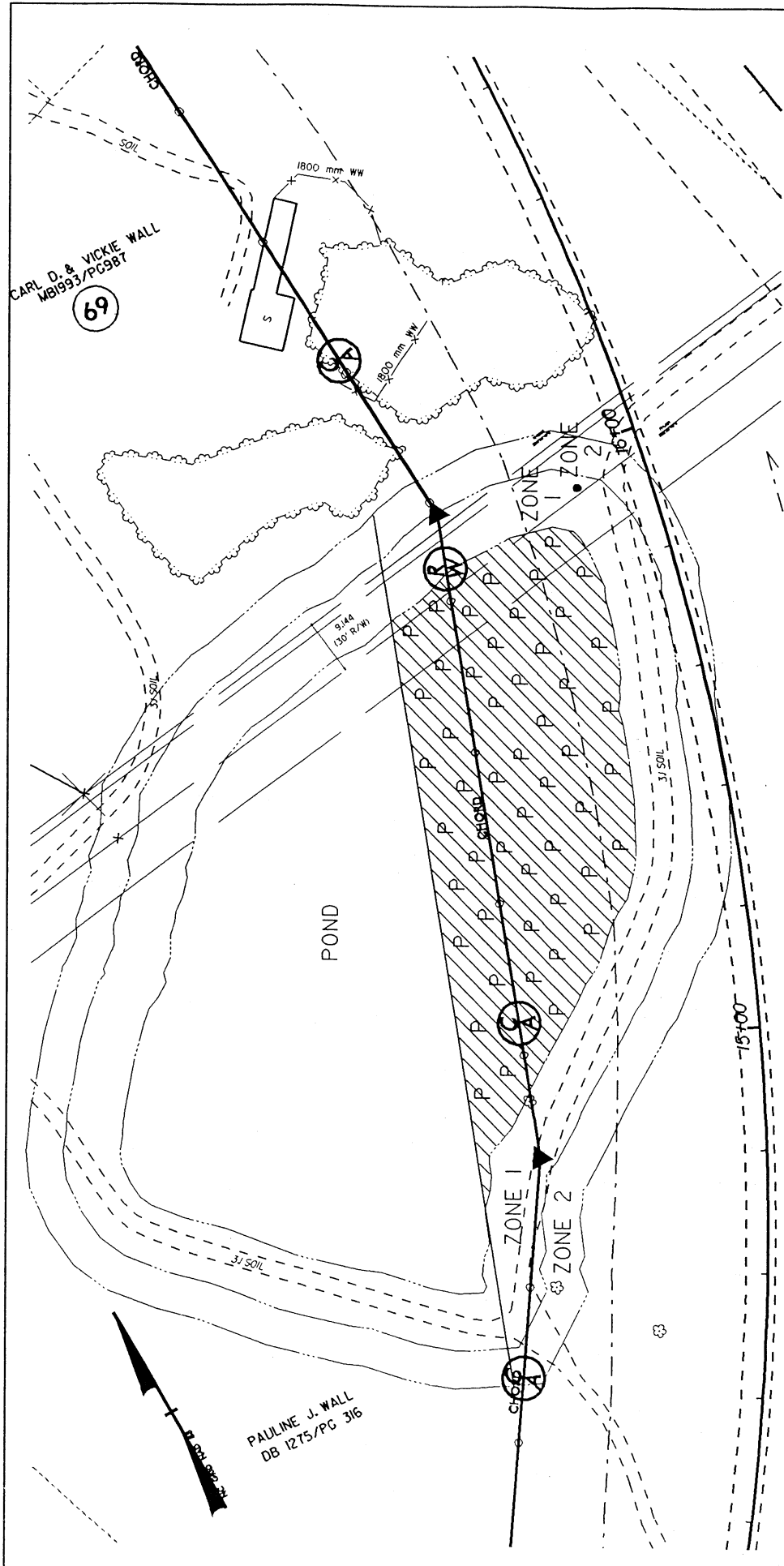


PLAN VIEW SITE 2



DENOTES FILL IN SURFACE WATERS (POND)

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.1402202 (R-2641)
EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST
SHEET 4 OF 16 6/6/2000



N.C.D.O.T.

DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.2404601 (R-264D)

EAST WAKE EXPRESSWAY

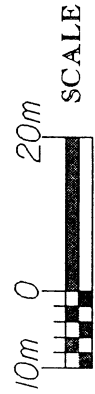
PROPOSED US 64

BYPASS TO US64 EAST

SHEET OF 7/7/03

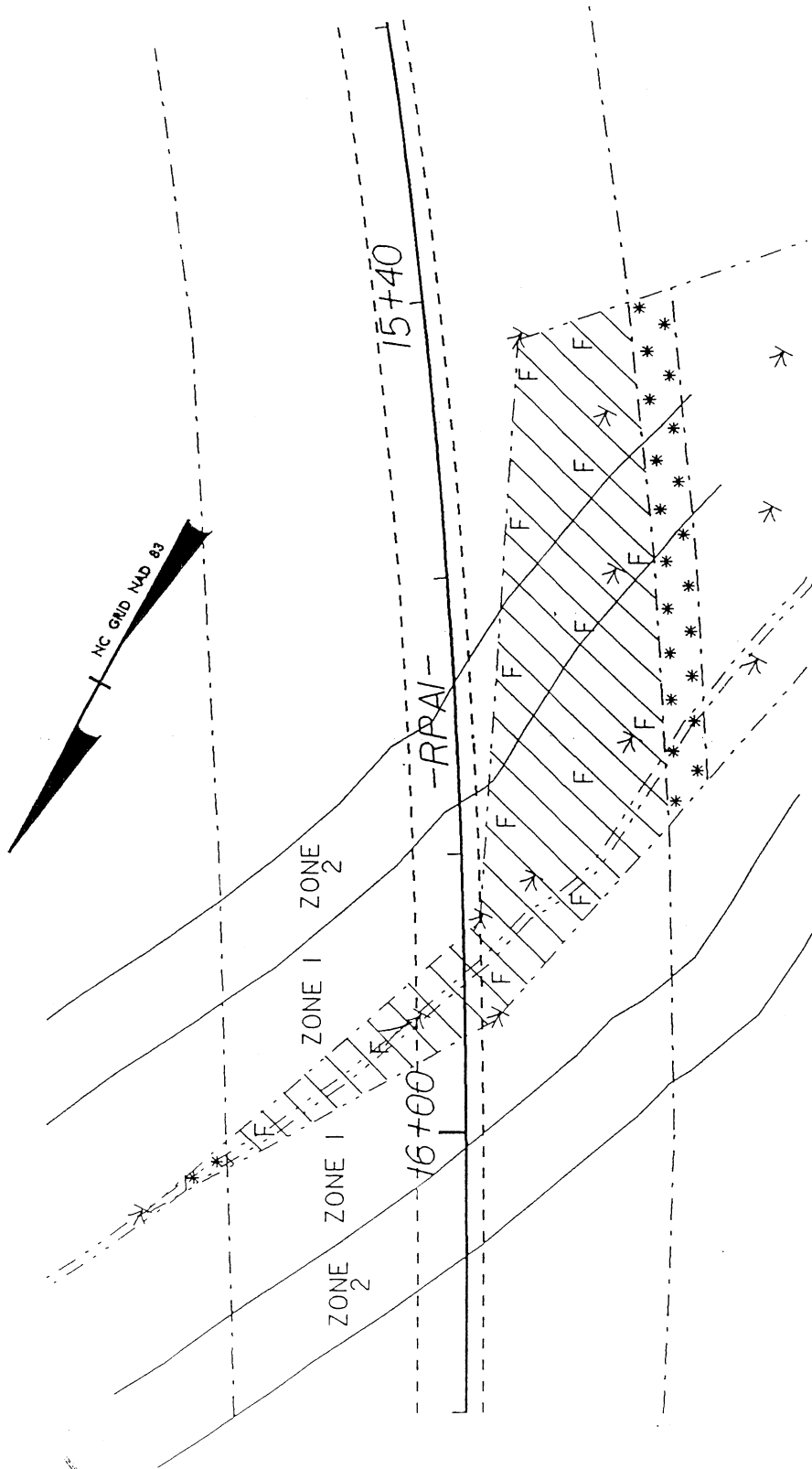
SITE 3

DENOTES IMPACTS TO POND

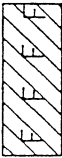



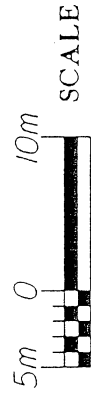
SCALE

68-CC

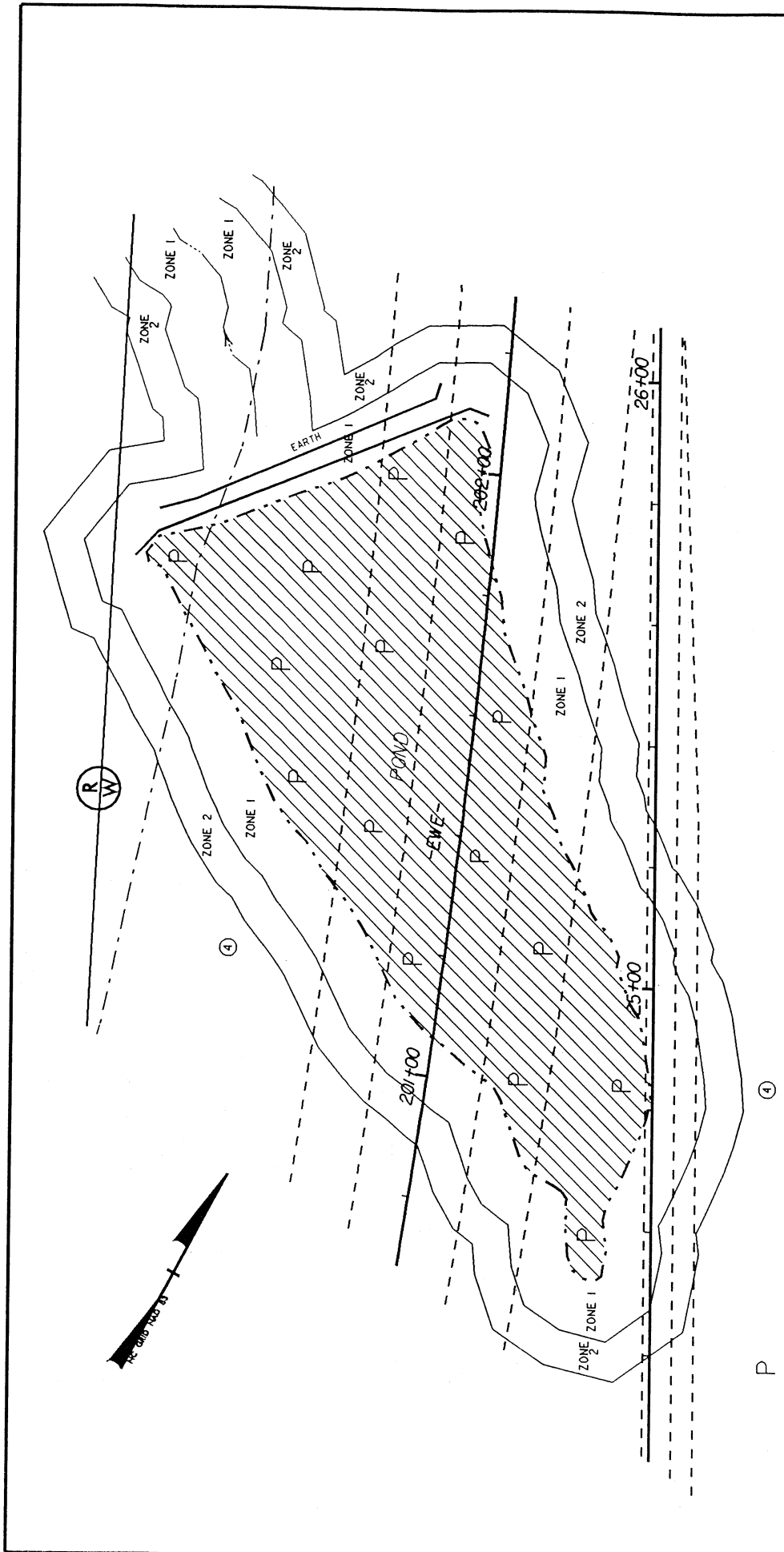


PLAN VIEW SITE 4

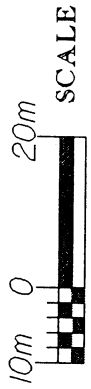
-  DENOTES FILL IN WETLANDS
-  DENOTES MECHANIZED CLEARING

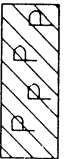


N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 82404601 (R-2641)
EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST
SHEET 6 OF 16 6/6/2000



PLAN VIEW SITE 5



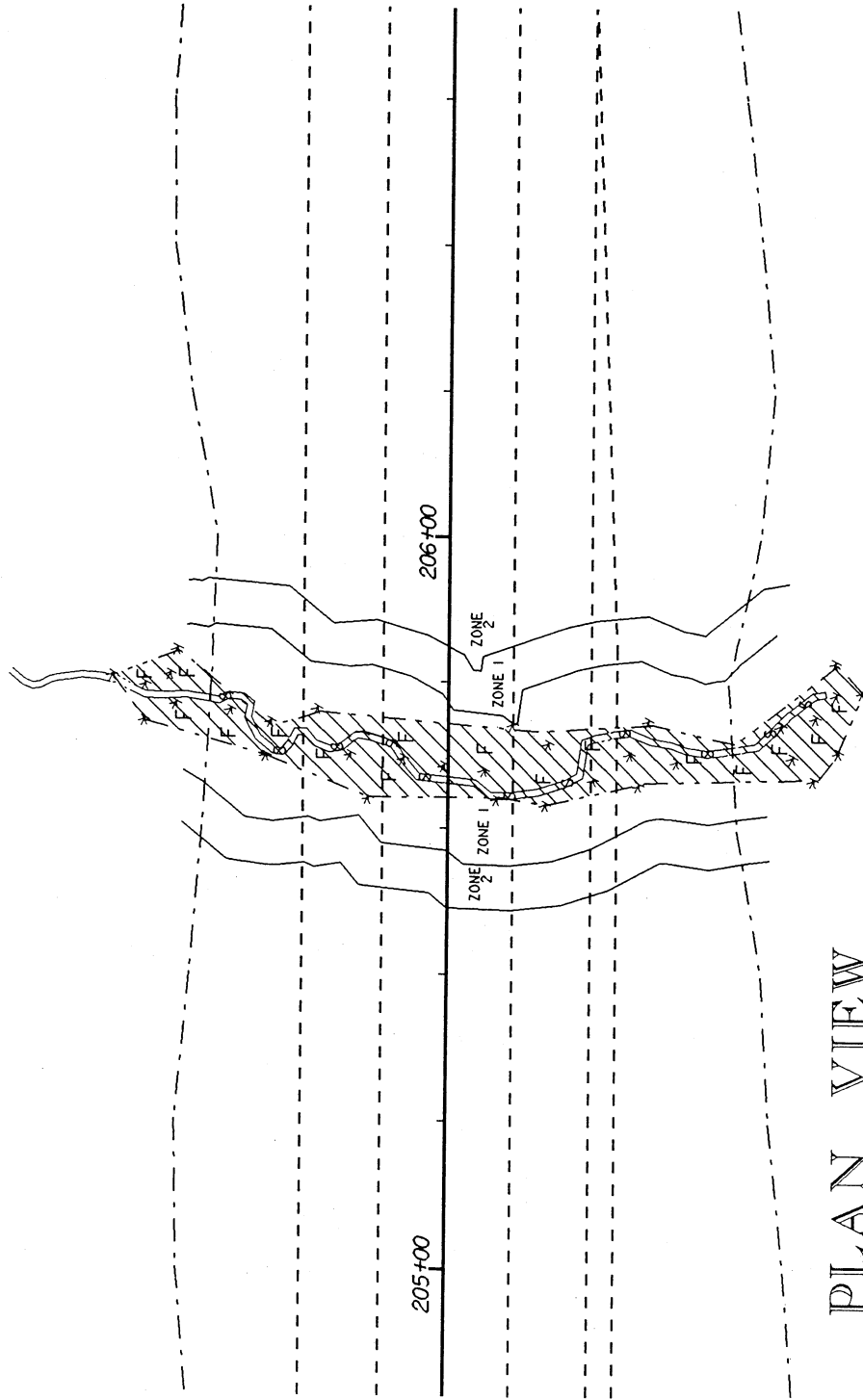
 DENOTES FILL IN SURFACE WATERS (POND)

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.2404601 (R-2641)

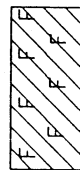
EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST



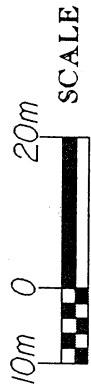
PLAN VIEW SITE 5A



DENOTES FILL IN SURFACE WATERS



DENOTES FILL IN WETLANDS



N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

WAKE COUNTY

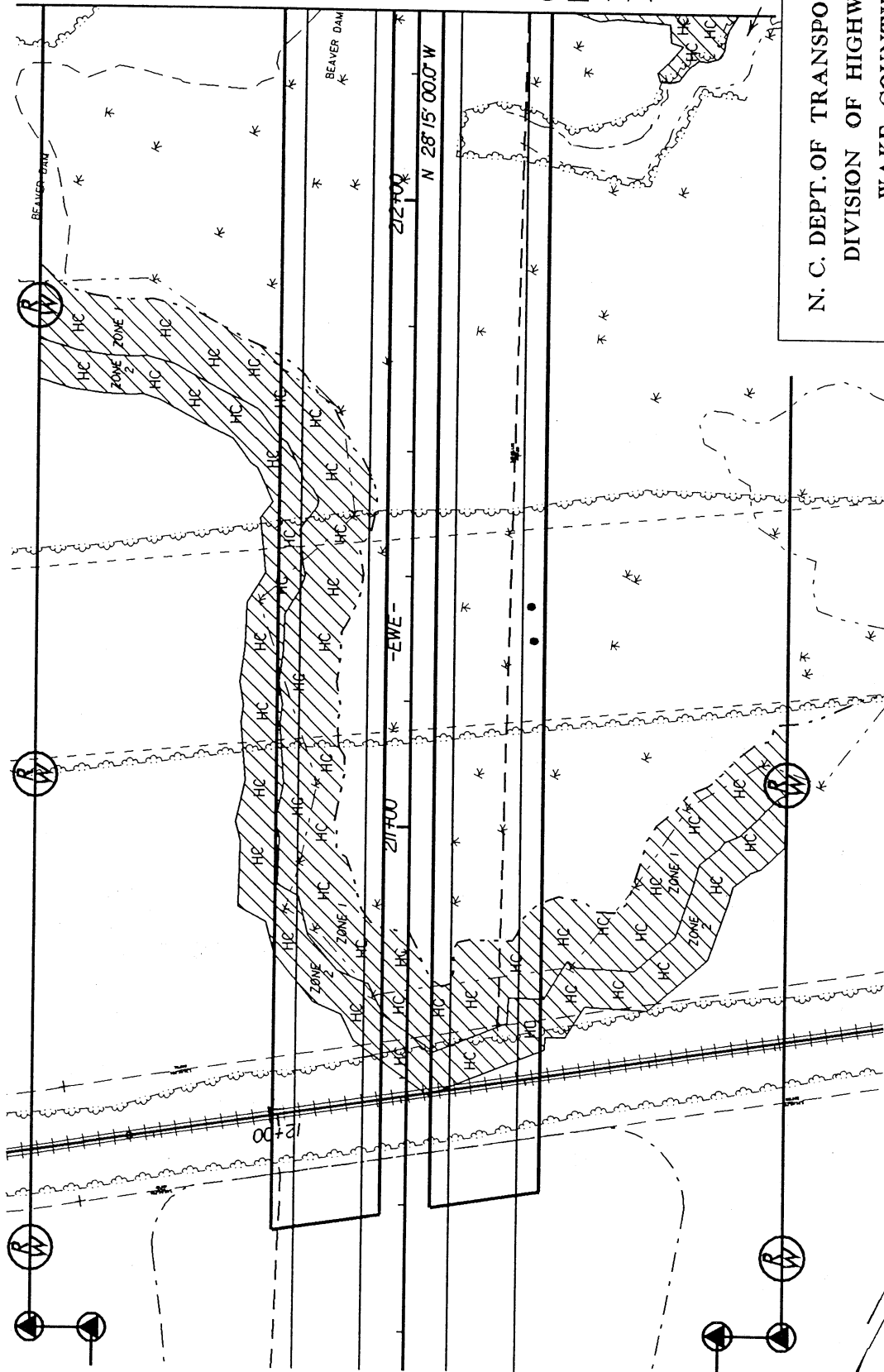
PROJECT: 8.2404601 (R-2641)

EAST WAKE EXPRESSWAY

FROM PROPOSED US 64

BYPASS TO US 64 EAST

SHEET OF 7 / 7 // 03



212+30

MATCH LINE

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.1402202 (R-264D)

EAST WAKE EXPRESSWAY

FROM PROPOSED US 64

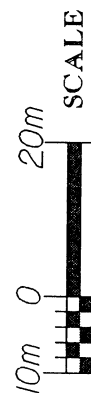
BYPASS TO US 64 EAST

SHEET OF 7/7/03

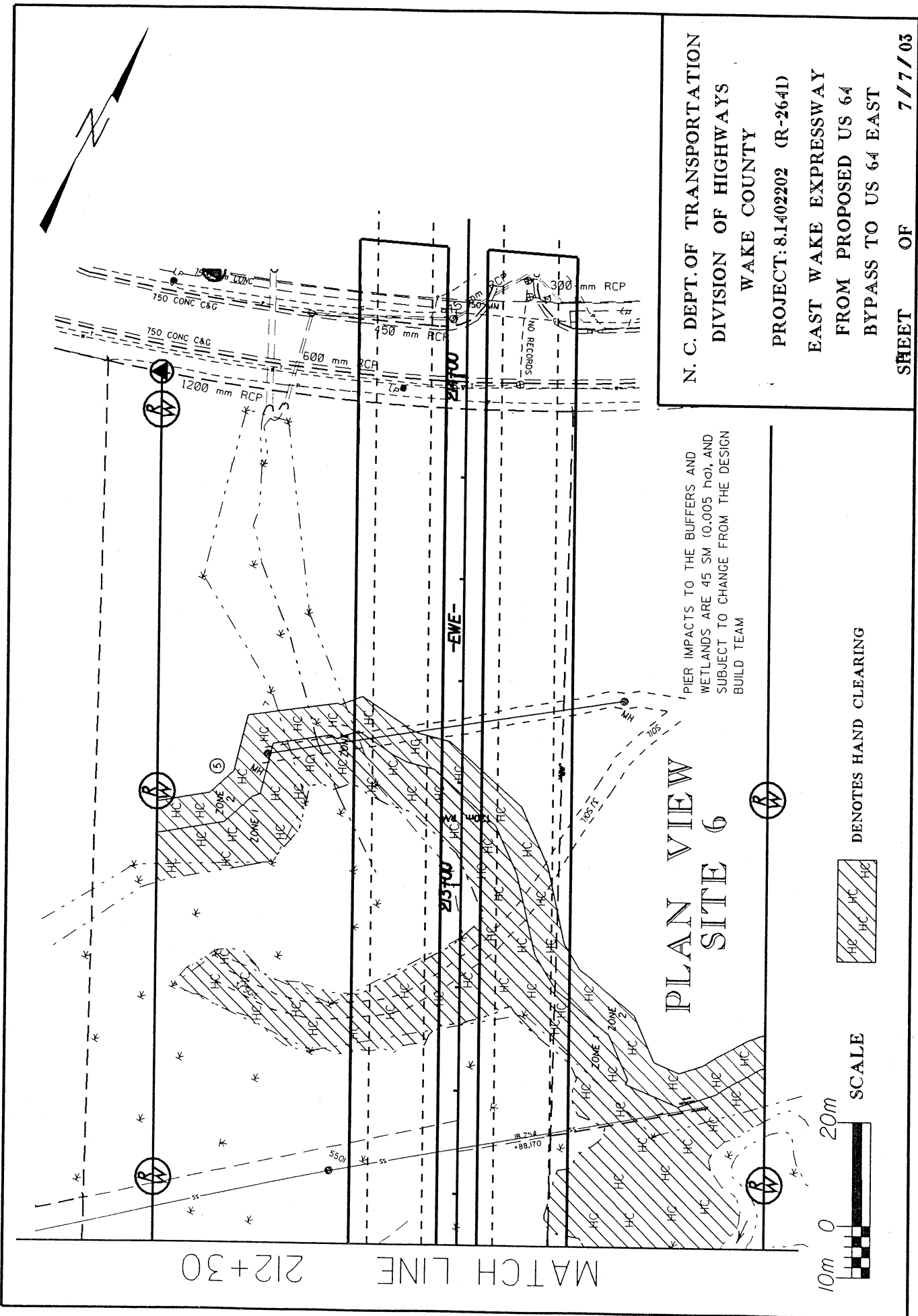
PIER IMPACTS TO THE BUFFERS AND
WETLANDS ARE 45 SM (0.005 ha), AND
SUBJECT TO CHANGE FROM THE DESIGN
BUILD TEAM

PLAN VIEW
SITE 6

DENOTES HAND CLEARING



SCALE



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 81402202 (R-2641)

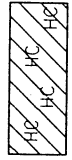
EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST

SHEET OF 7/7/03

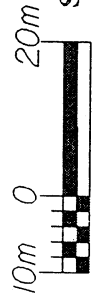
PLAN VIEW
SITE 6

PIER IMPACTS TO THE BUFFERS AND
WETLANDS ARE 45 SM (0.005 ha), AND
SUBJECT TO CHANGE FROM THE DESIGN
BUILD TEAM

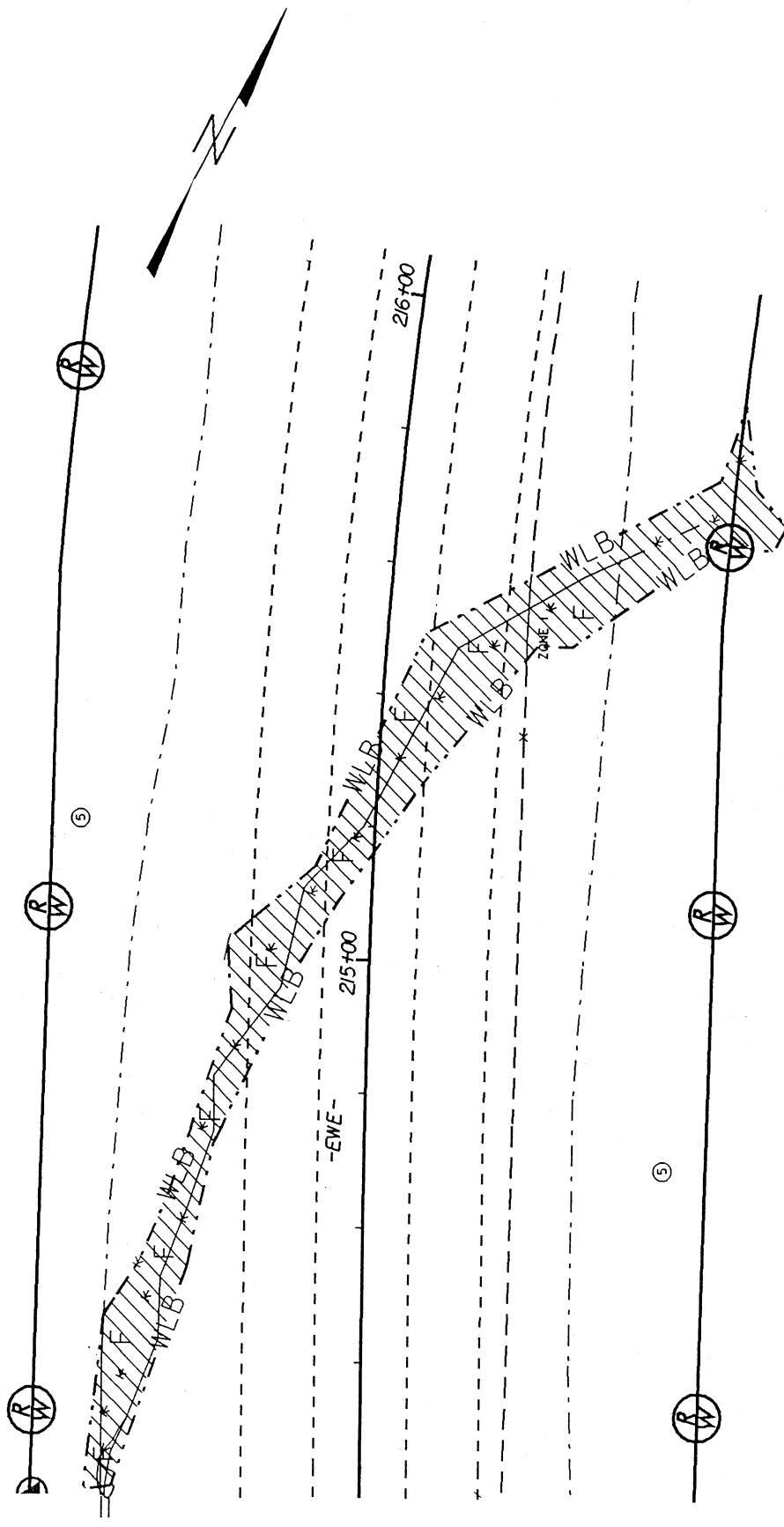
DENOTES HAND CLEARING



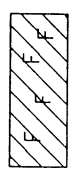
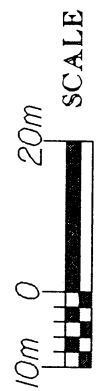
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HH-89

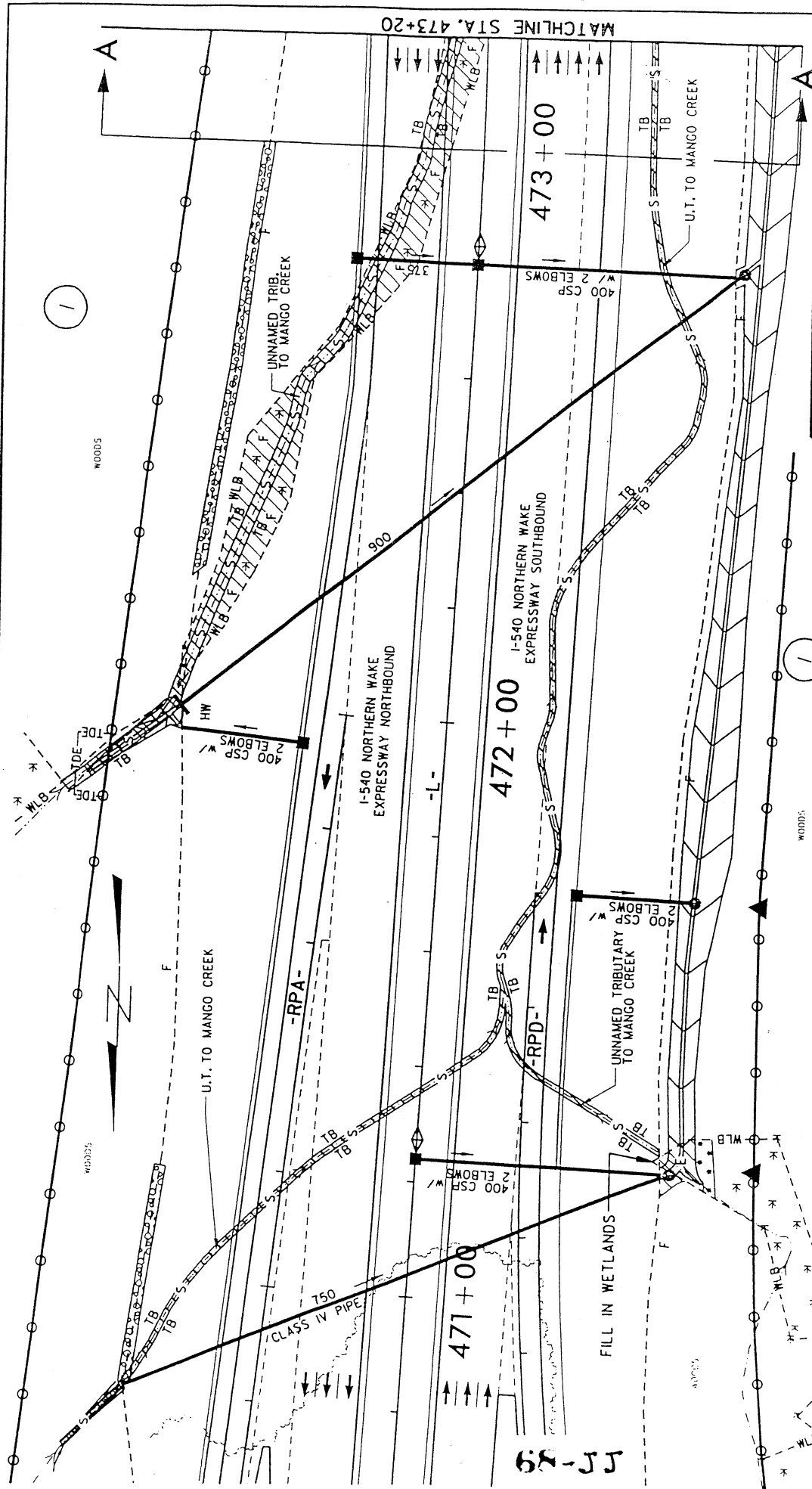


PLAN VIEW SITE 7



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.2404601 (R-2641)
EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST

SHEET OF 7 / 7 / 03

PLAN VIEW
SITE 8

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402202 (R-2641).

EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST

SHEET 12 OF 16 6/22/2001

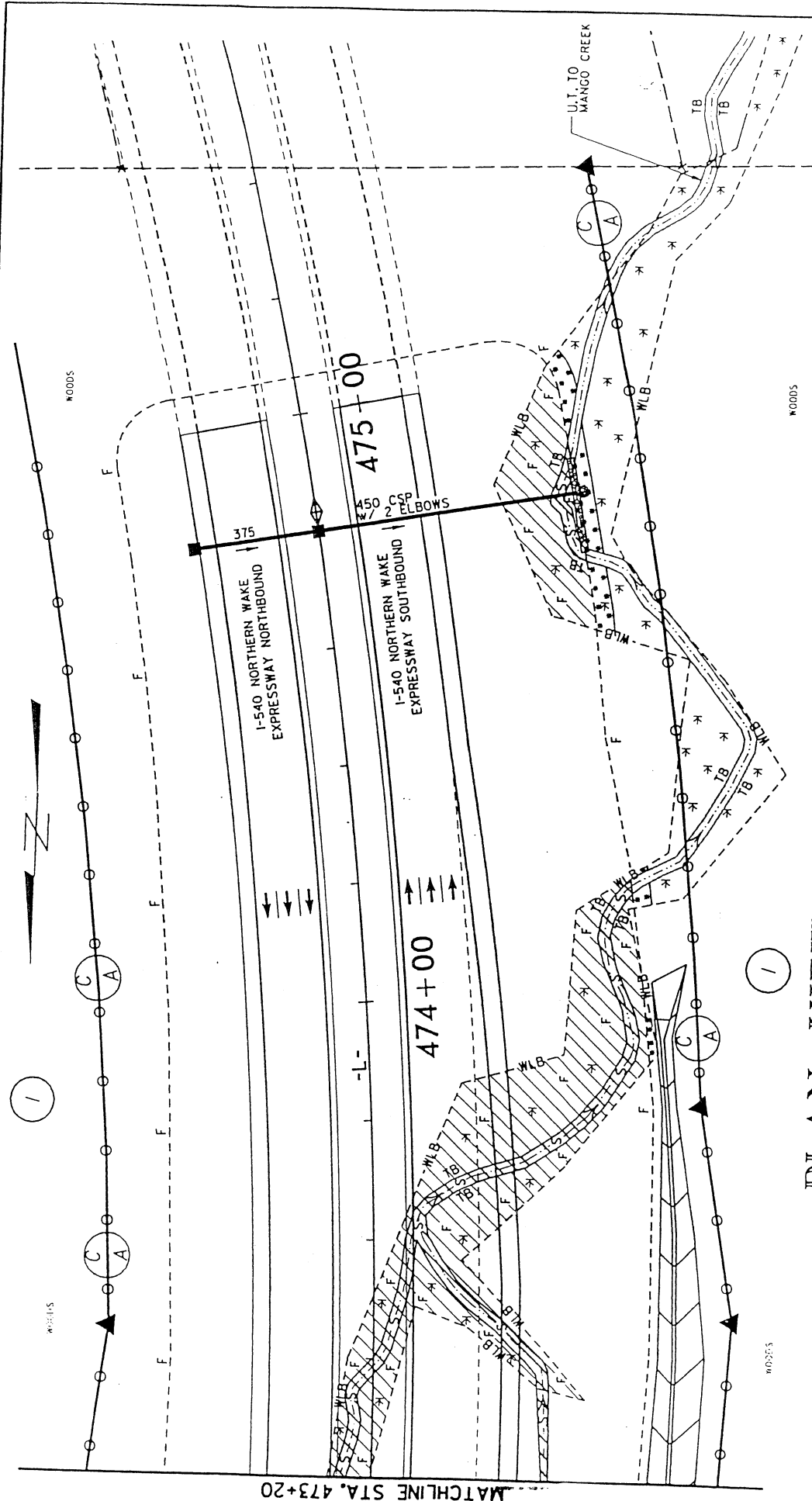
DENOTES MECHANIZED
CLEARING

DENOTES EXCAVATION
IN WETLANDS

DENOTES FILL IN
WETLANDS

DENOTES FILL IN
SURFACE WATERS





PLAN VIEW SITE 8

- DENOTES MECHANIZED
CLEARING
- DENOTES FILL IN
WETLANDS
- DENOTES FILL IN
SURFACE WATERS

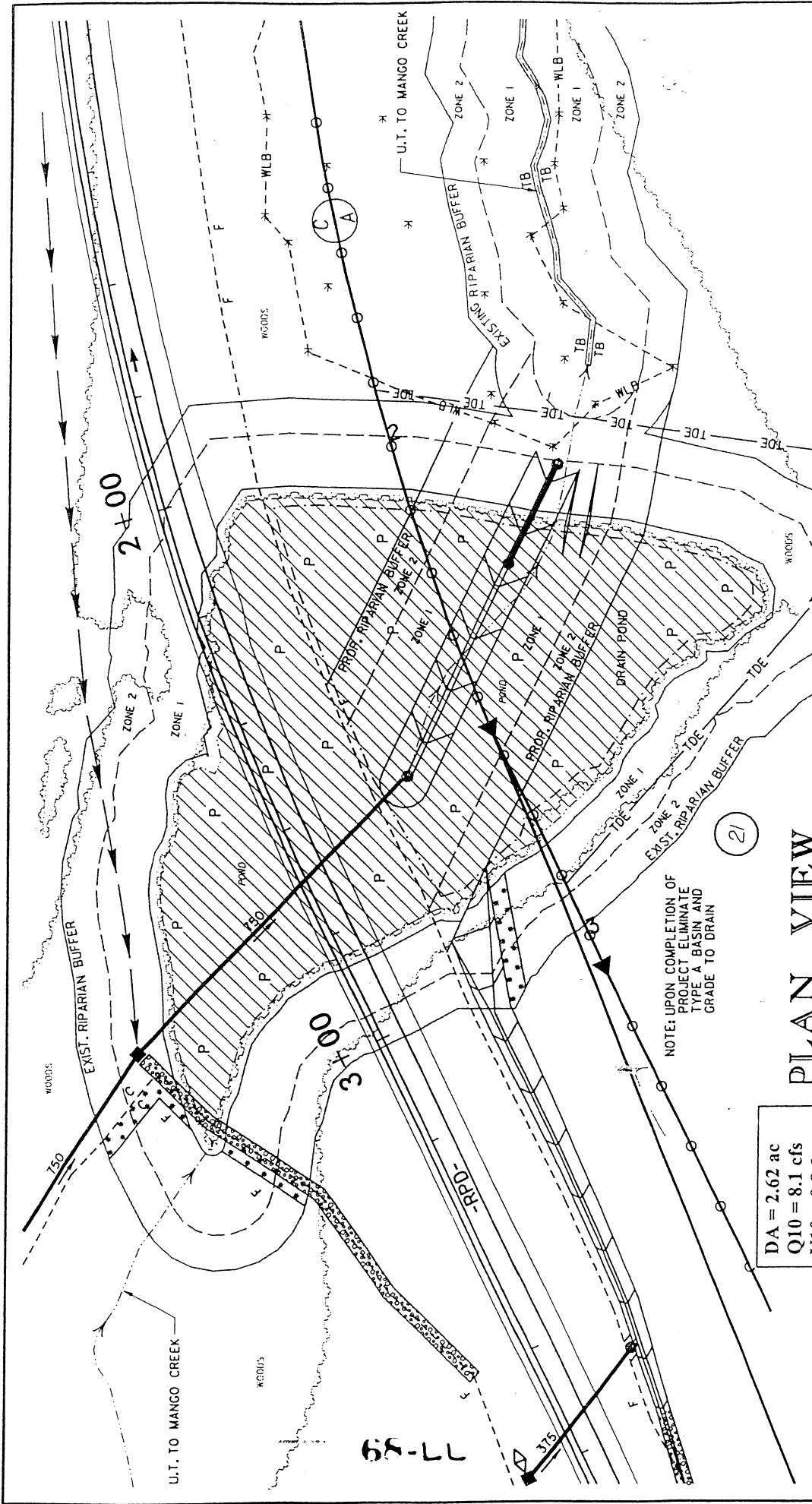


N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402202 (R-2641)

EAST WAKE EXPRESSWAY
FROM PROPOSED US 64
BYPASS TO US 64 EAST

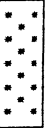

SHEET 13 OF 16 6/22/2001



N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 WAKE COUNTY

PROJECT: 814402202 (R-2641)
 EAST WAKE EXPRESSWAY
 FROM PROPOSED US 64
 BYPASS TO US 64 EAST

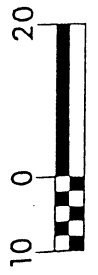
SHEET 14 OF 16 3/18/2002

 DENOTES MECHANIZED CLEARING
 DENOTES FILL IN SURFACE WATER (POND)

NOTE: UPON COMPLETION OF PROJECT ELIMINATE TYPE A BASIN AND GRADE TO DRAIN

DA = 2.62 ac
 Q10 = 8.1 cfs
 V10 = 0.8 fps
 D10 = 0.3 ft
 S = 0.5%

PLAN VIEW
 SITE 9



IMPACT SUMMARY														
			WETLAND IMPACTS				SURFACE WATER IMPACTS					FILL IN BUFFER		
Site No.	Station (From/To)	Structure Size	Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Mechanized Clearing (Method III) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Temp. Fill In SW (ha)	Existing Channel Impacted (m)	Relocated Channel (m)	Enclosed Channel (m)	Zone 1 (ha)	Zone 2 (ha)
1	ELIMINATED													
2	11+80-12+40 RPA1							0.25					0.215	0.174
3	15+20-16+00 RPB1							0.268					0.125	0.163
4	15+40-16+00 RPA1		0.054			0.012	0.003						0.078	0.052
5	201+00-202+00 EWE							0.493					0.36	0.265
5A	205+70 EWE		0.08				0.009			104.4			0.154	0.098
6	210+40-214+20 EWE	BRIDGED												
7	214+23-215+60		0.134			0.008								
8	471+20-474+17 L	1@750, 1@900	0.171		0.003	0.004	0.092			624.7		221.5		
	474+57-475+22 L		0.035	0.006		0.012	0.004		0.003	18				
9	4+17-4+41 Y5 RPA	600					0.004			67.9		43.3		
	2+03-3+04 Y5 RPD	750						0.582					0.372	0.278
TOTALS:			0.474	0.006	0.003	0.036	0.112	1.593	0.003	815	0	264.8	1.304	1.03

Site 4 Wetlands in Buffered Zone 1 = 0.031 ha
Wetlands in Buffered Zone 2 = 0.011 ha

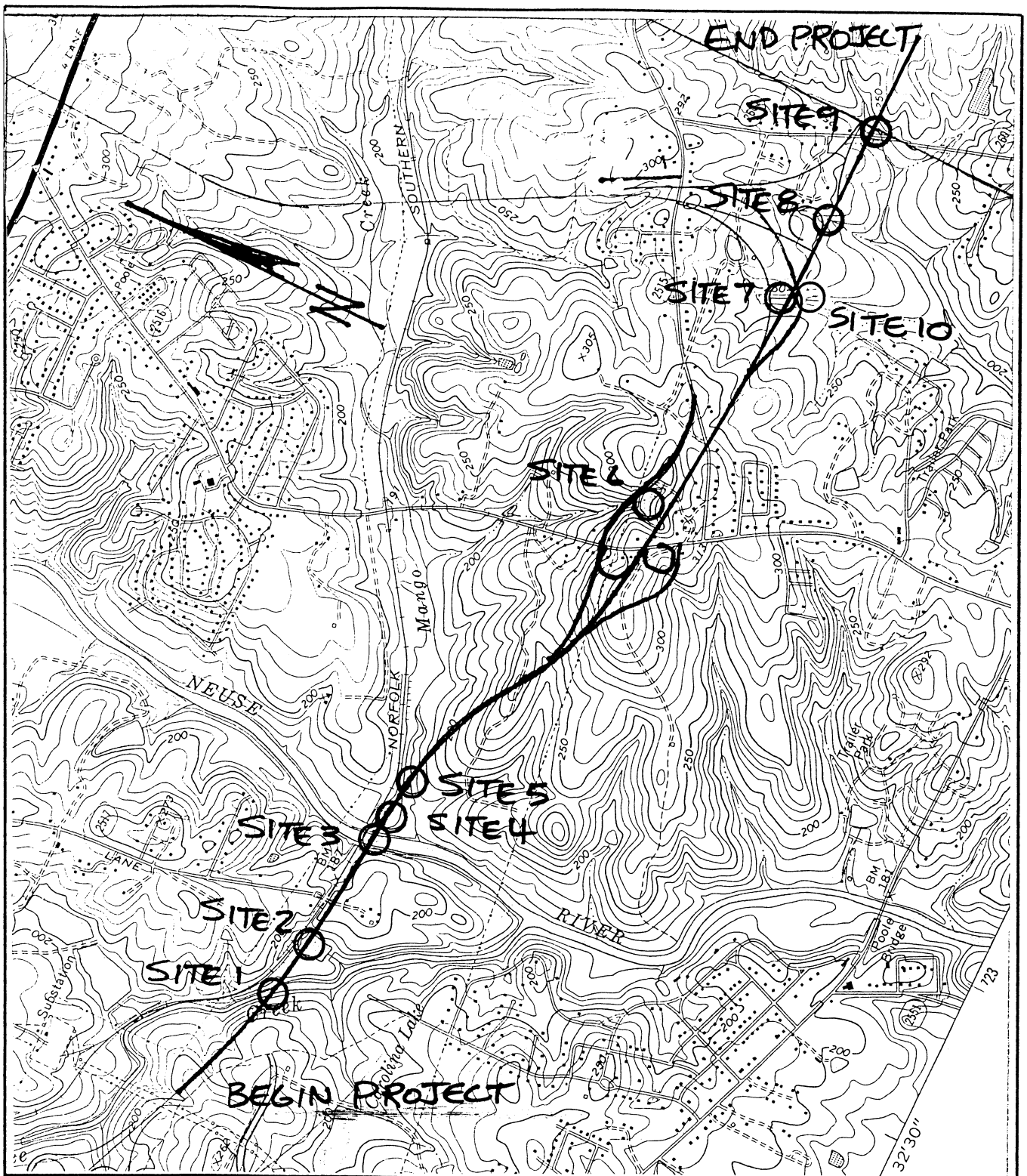
SITE 6: Bridge Crossing
Hand Cleared Buffered Zone 1 = 0.520 ha
Hand Cleared Buffered Zone 2 = 0.247 ha
Wetlands in Hand Cleared Buffered Zone 1 = 0.194 ha
Wetlands in Hand Cleared Buffered Zone 2 = 0.013 ha

NOTE: Pier impacts associated with bridge are approximately 45 sm = 0.005 ha (subject to change from design build team)
Pier impacts are for buffers and wetlands total

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 824044601 R-2641
EAST WAKE EXPRESSWAY
FROM PROPOSED 64 BYPASS TO US 64

SHEET 1 OF 7
7/7/03



SITE MAP

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 8.1402202 (R-2547BB)
US 64 BYPASS FROM NEW HOPE
ROAD TO EAST OF SR 2601
CLIFTON ROAD

SHEET OF 6 / 22 / 2001

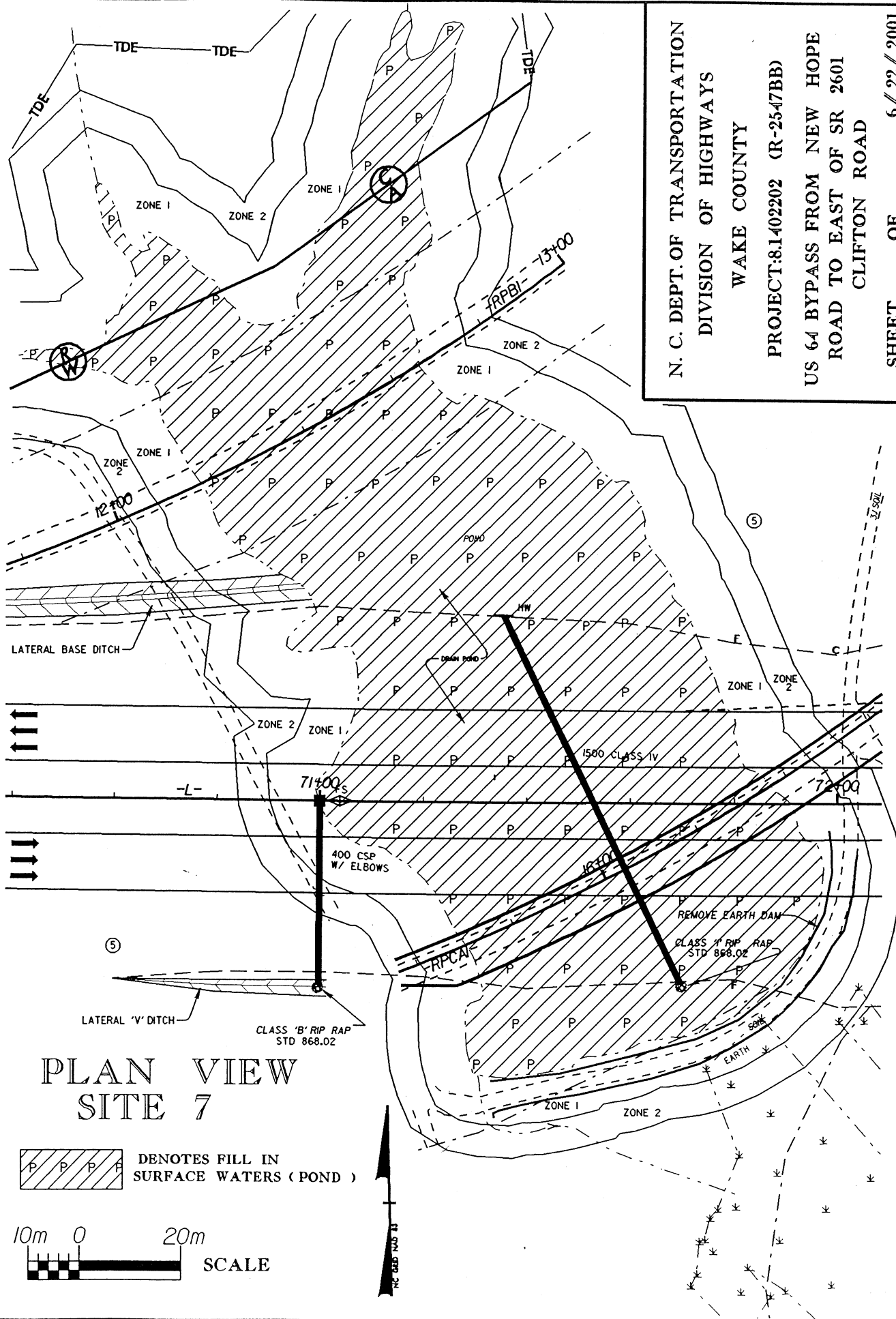
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

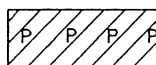
PROJECT: 81402202 (R-2547BB)

US 64 BYPASS FROM NEW HOPE
ROAD TO EAST OF SR 2601
CLIFTON ROAD

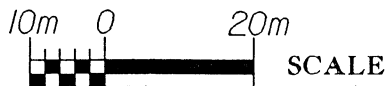
SHEET OF 6 / 22 / 2001



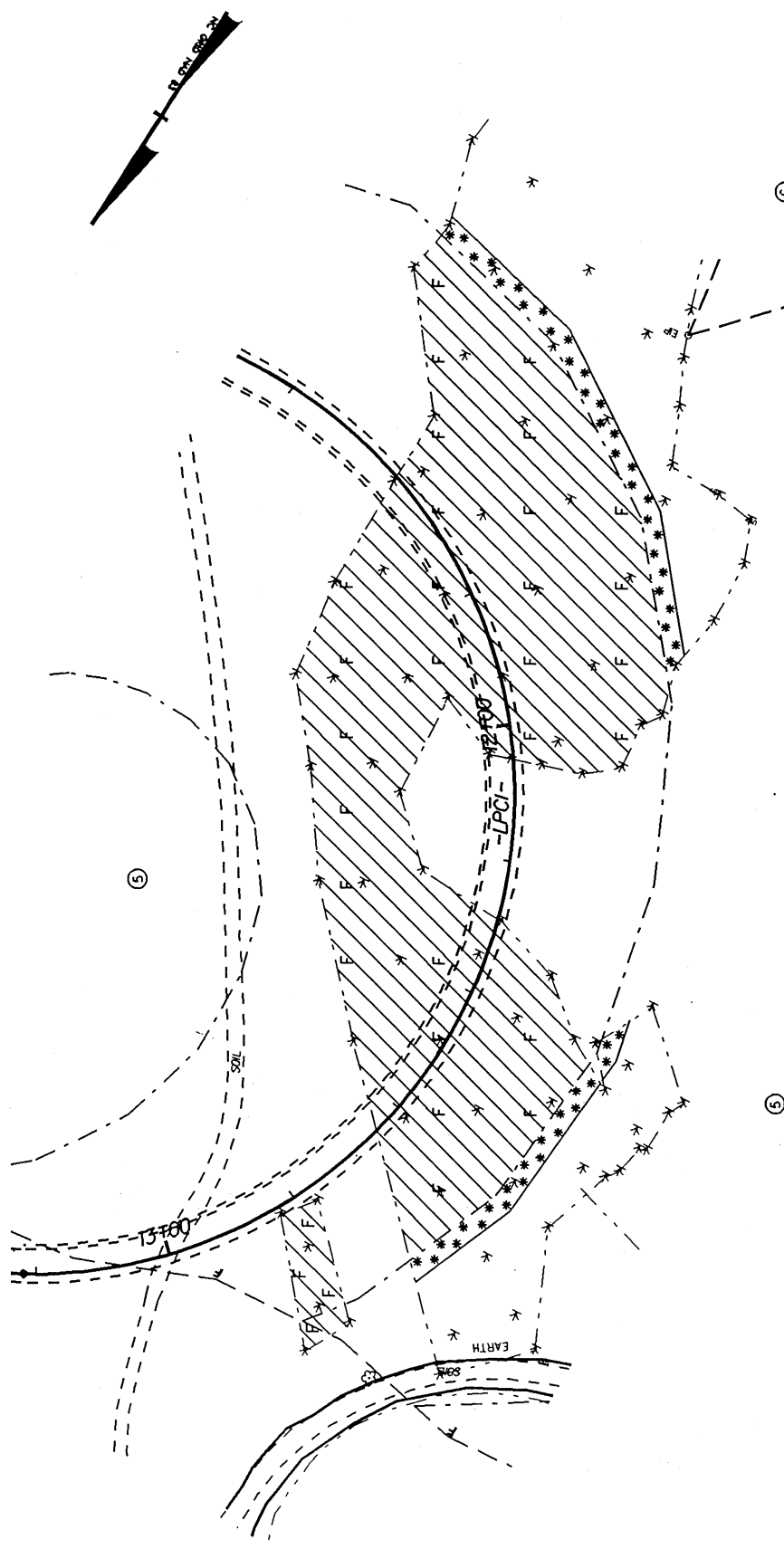
PLAN VIEW
SITE 7



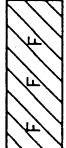

DENOTES FILL IN
SURFACE WATERS (POND)



SCALE



PLAN VIEW SITE 10

-  DENOTES FILL IN WETLANDS
-  DENOTES MECHANIZED CLEARING



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY

PROJECT: 81402202 (R-2547BB)
US 64 BYPASS FROM NEW HOPE
ROAD TO EAST OF SR 2601
CLIFTON ROAD

SHEET OF 8 / 24 / 2001

WAKE

TRAFFIC CONTROL SCOPE OF WORK:**1 - TRAFFIC CONTROL PLAN**

Design and prepare the Traffic Control Plan for the project. Comply with the time frame specified in the project schedule for the review and return of the Traffic Control Plan. Development of the Traffic Control Plan should proceed as follows.

Submit a Staging Concept of project construction to the Resident Engineer for review and acceptance by the Division Construction Engineer. A Staging Concept is a description of the sequenced phases and steps to be followed in implementing the construction plans. The Staging Concept must be accepted before proceeding further with the development of the Traffic Control Plan.

Construction may proceed only with an accepted and sealed Traffic Control Plan, including Phasing. A complete Traffic Control Plan will not be required to begin phased construction activities on this project. Upon acceptance of the Staging Concept, proceed with the development of the Traffic Control Plan for each Phase. Construction may begin on a Phase once the Traffic Control Plan for that Phase has been sealed and accepted.

The Traffic Control Plan will include lane closures, detours, temporary pavement construction, traffic control devices, temporary lane markings, construction signing and project notes. The plan will identify lane widths, transition taper widths and any geometry necessary to define placement of devices and any temporary roadway alignments, including crossovers. The Traffic Control Plan will address the pavement design to be used for temporary roadway pavements and pavement markings/markers for temporary patterns on existing/proposed/temporary roadways. NCDOT's Roadway Standard Drawings – Sections 1100 and 1200 are for traffic control, and will need to be incorporated into the plans for most work activities. Detailed phasing plans will be required where traffic control activities and device placement cannot be entirely covered by these standard drawings. Sealed and accepted plans showing all pavement markings which are not covered in the NCDOT's Roadway Standard Drawings are required prior to placement of any temporary markings and temporary markers.

Develop Traffic Control Plan details to be at a scale of 1"=50'. Overviews should be at a scale of 1"=100' unless otherwise agreed upon. The NCDOT's Traffic Control Website should be utilized when developing the Traffic Control Plan. The Traffic Control Website is continuously updated and provides key information necessary in preparing the Traffic Control Plan. For any additional information, contact the Traffic Control Section at (919) 250-4159.

The website address is: <http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/tc/>

Coordinate with the Engineer to promote public awareness for this project. Hold a coordination meeting with NCDOT one month prior to beginning of construction. NCDOT will be responsible for the initial public information effort through its IMPACT Team. Once the project is announced formally to the public, it will be the Design Builder's responsibility to hold public meetings and press conferences, make media announcements, distribute flyers, and post advertisements.

WAKE

Inform the following groups at least 3 weeks in advance of any construction activities which will have significant impact on the public: governmental agencies, municipalities directly affected by the construction, transportation services, emergency services, neighborhood groups, private homes, industry and businesses, and any other organization as deemed necessary by the Engineer.

Use traffic control devices that conform to all NCDOT requirements and are listed on the Department's Approved Products List as shown on NCDOT's Traffic Control Website: (<http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/tc/>). For any additional information contact the Traffic Control Section at (919) 250-4159.

Available traffic counts will be provided by NCDOT for use during development of Traffic Control Plans and to verify time restrictions listed under 3 – PROJECT REQUIREMENTS, below.

2 - FINAL PAVEMENT MARKING PLANS

Construction may proceed only with an accepted and sealed Final Pavement Marking Plan. Prepare Final Pavement Marking Plans at a scale of 1"=50' unless otherwise agreed upon. NCDOT's Roadway Standard Drawings – Sections 1100 and 1200 are for pavement markings, markers and devices left on the project and will be utilized where applicable. Prepare detailed plans for all signalized intersections and all locations where NCDOT's Roadway Standard Drawings do not completely describe the required markings and markers. The plans will show lane widths, transition tapers, lane lines, edge lines, gore markings, stop bars, symbols, word messages, crosswalks and other appropriate markings and markers.

Pavement marking and marker products that conform to all NCDOT's requirements and specifications are listed on the Department's Approved Products List as shown on the NCDOT's Traffic Control Website: (<http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/tc/>). Installation shall be in accordance with NCDOT's Standard Specifications for Roads and Structures, and in accordance with the manufacturer's procedures and specifications. For any additional information contact the Traffic Control Section at (919) 250-4159.

3 - PROJECT REQUIREMENTS/NOTES

- A) Adapt the traffic control plans, when directed by the Engineer, to meet field conditions to provide safe and efficient traffic movement. Changes may be required when physical dimensions in the detail drawings, standard details and roadway details are not attainable, or result in duplicate, or undesired overlapping of devices. Modification may include: moving, supplementing, covering or removal of devices.

The following general notes apply at all times for the duration of the construction project, except when otherwise noted in the Plan, or directed by the Engineer.

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TIME RESTRICTIONS

B) Do not close or narrow travel lanes as follows:

<u>Road Name</u>	<u>Day and Time Restrictions</u>
1. US 64 Bypass	Monday – Friday 6:00 a.m. – 9:00 a.m. Monday – Friday 3:00 p.m. – 8:00 p.m.

The Liquidated Damages for this Intermediate Contract Time are **\$10,000.00** per hour, for US-64 Bypass.

C) Do not close or narrow travel lanes during Holidays and Special Events as follows:

Road Name

1. US 64 Bypass

Holiday

1. For any event that creates unusually high traffic volumes, as directed by the Engineer.
2. For New Year's, between the hours of 3:00 p.m. December 31st to 9:00 a.m. January 2nd. If New Year's Day is on a Saturday or a Sunday, then until 9:00 a.m. the following Tuesday.
3. For Easter, between the hours of 3:00 p.m. Thursday and 9:00 a.m. Monday.
4. For Memorial day, between the hours of 3:00 p.m. Friday to 9:00 a.m. Tuesday.
5. For Independence Day, between the hours of 3:00 p.m. the day before Independence Day and 9:00 a.m. the day after Independence Day.

If Independence Day is on a Saturday or Sunday, then between the hours of 3:00 p.m. the Thursday before Independence Day and 9:00 a.m. the Tuesday after Independence Day.
6. For Labor Day, between the hours of 3:00 p.m. Friday to 9:00 a.m. Tuesday.
7. For Thanksgiving, between the hours of 3:00 p.m. Tuesday to 9:00 a.m. Monday.
8. For Christmas, between the hours of 3:00 p.m. the Friday before the week of Christmas Day and 9:00 a.m. the following Monday after the week of Christmas.

The Liquidated Damages for this Intermediate Contract Time are **\$10,000.00** per hour, for US 64 Bypass.

WAKE

D) Do not stop traffic or close roads as follows:

Road NameDay and Time Restrictions

1. US 64 Bypass

Monday – Sunday 6:00 a.m. – Midnight

E) Do not stop traffic as follows:

OperationRoad Name

1. Traffic shifts (15 minutes)

US 64 Bypass

2. Girder installation (30 minutes)

US 64 Bypass

3. Overhead sign installation (30 minutes)

US 64 Bypass

The Liquidated Damages for this Intermediate Contract Time are \$ **2,500.00** per 15 minute time period or \$ **5,000.00** per 30 minute time period.

F) Do not conduct multi-vehicle hauling as follows; ingress and egress from ramps will not be allowed. Multiple vehicle hauling is defined as the hauling of equipment or materials to or from the project with delivery at intervals of less than five minutes and/or results in more than one vehicle at particular work site at one time.

Road NameDay and Time Restrictions

1. US 64 Bypass

Monday – Friday 6:00 a.m. – 9:00 a.m.

Monday – Friday 3:00 p.m. – 8:00 p.m.

G) Do not conduct any hauling operations against the flow of traffic of an open travelway unless the work area is protected by barrier or guardrail or otherwise directed by the Engineer.

LANE AND SHOULDER CLOSURE REQUIREMENTS

H) Remove lane closure devices from the lane when work is not being performed behind the lane closure or when a lane closure is no longer needed, or as directed by the Engineer.

I) When personnel and/or equipment are working within 40 ft (12m) of an open travel lane, close the nearest open shoulder using Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail.

WAKE

- J) When personnel and/or equipment are working on the shoulder adjacent to an undivided facility and within 5 ft (1.5m) of an open travel lane, close the nearest open travel lane using Roadway Standard Drawing No. 1101.02 unless the work area is protected by barrier or guardrail.

When personnel and/or equipment are working on the shoulder adjacent to a divided facility and within 10 ft (3m) of an open travel lane, close the nearest open travel lane using Roadway Standard Drawing No. 1101.02 unless the work area is protected by barrier or guardrail.

- K) When personnel and/or equipment are working within a lane of travel of an undivided or divided facility, close the lane according to the Traffic Control Plans, Roadway Standard Drawings or as directed by the Engineer. Conduct the work so that all personnel and/or equipment remain within the closed travel lane.
- L) Do not work simultaneously, on both sides of an open travelway, within the same location, on a two lane, two-way road.
- M) Do not perform work involving heavy equipment within 15 ft (5m) of the edge of travelway when work is being performed behind a lane closure on the opposite side of the travelway.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- N) Backfill at a 6:1 slope up to the edge and elevation of existing pavement in areas adjacent to an opened travel lane that has a drop-off as follows:

Backfill drop-offs that exceed 2 inches (50mm) on roadways with posted speed limits of 45 MPH or greater.

Backfill drop-offs that exceed 3 inches (75mm) on roadways with posted speed limits less than 45 MPH.

Backfill with suitable compacted material, as approved by the Engineer, at no expense to the Department.

- O) Do not exceed a difference of 1.5 inches (40mm) in elevation between open lanes of traffic. Install advance warning "UNEVEN LANES" signs (W8-11) 500 ft (150m) in advance and a minimum of once every mile throughout the uneven area.

TRAFFIC PATTERN ALTERATIONS

- P) Notify the Engineer twenty one (21) calendar days prior to any traffic pattern alteration.

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SIGNING

- Q) Install advance work zone warning signs when work is within 100 ft (31m) from the edge of travel lane and no more than three (3) days prior to the beginning of construction.

When no work is being conducted for a period longer than one week, remove or cover all advance work zone warning signs, as directed by the Engineer, at no cost to the Department.

- R) Provide permanent signing.
- S) Provide detour signing within and off the project limits.
- T) Cover or remove all detour signs within and off the project limits when a detour is not in operation.
- U) Ensure all necessary signing is in place prior to altering any traffic pattern.
- V) Install black on orange "DIP" signs (W8-2) 500 ft (150m) in advance of the uneven area.
- W) Install black on orange "BUMP" signs (W8-1) 500 ft (150m) in advance of the uneven area.

TRAFFIC BARRIER

- X) Install movable/portable concrete barrier/water filled barrier according to the Traffic Control Plans a maximum of two (2) weeks prior to beginning work in any location. Once movable/portable concrete barrier/water filled barrier is installed at any location, proceed in a continuous manner to complete the proposed work in that location unless otherwise stated in the Traffic Control Plans or as directed by the Engineer.

Once movable/portable concrete barrier/water filled barrier is installed at any location and no work is performed behind the movable/portable concrete barrier/water filled barrier for a period longer than two (2) months, remove/reset movable/portable concrete barrier/water filled barrier at no cost to the Department unless otherwise stated in the Traffic Control Plans, barrier is protecting a hazard, or as directed by the Engineer.

- Y) Protect the approach end of movable/portable concrete barrier at all times during the installation and removal of the barrier by either a truck mounted impact attenuator (maximum 72 hours) or a temporary crash cushion.

Offset the approach end of movable/portable concrete barrier a minimum of 40 ft (12m) from oncoming traffic or protect at all times by a temporary crash cushion.

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Install movable/portable concrete barrier/water filled barrier with the traffic flow, beginning with the upstream side of traffic. Remove movable/portable concrete barrier/water filled barrier against the traffic flow, beginning with the downstream side of traffic.

Install and space drums no greater than twice the posted speed limit (MPH) to close or keep closed the section of the roadway until the barrier can be placed or after barrier is removed.

If Metric Project - Install and space drums equal in meter to 2/3rds the posted speed limit (MPH) to close or keep closed the section of the roadway until the barrier can be placed or after barrier is removed.

When using Roadway Standard No. 1101.02, drums may be used in lieu of cones on all roads.

TRAFFIC CONTROL DEVICES

AA) Space channelizing devices in work areas no greater than twice the posted speed limit (MPH), except 10 ft (3m) on-center in radii, and 3 ft (1m) off the edge of an open travelway, when lane closures are not in effect.

If Metric Project - Space channelizing devices in work areas equal in meters to 2/3 rds the posted speed limit (MPH), except 3m on-center in radii, and 1m off the edge of an open travelway, when lane closures are not in effect.

BB) Place Type III Barricades, with "ROAD CLOSED" sign R11-2 attached, of sufficient length to close entire roadway. Stagger or overlap barricades to allow for ingress or egress.

CC) Place sets of three drums perpendicular to the edge of the travelway on 500 ft (150m) centers when unopened lanes are closed to traffic. These drums shall be in addition to channelizing devices.

PAVEMENT MARKINGS AND MARKERS

DD) Install pavement markings and pavement markers on the final surface as follows:

<u>Road Type</u>	<u>Marking</u>	<u>Marker</u>
1. All concrete pavement	Wide Width Polyurea	Permanent Raised
2. All asphalt pavement	Normal Width Thermoplastic or Polyurea	Permanent Raised

3. All ramps	Wide Width Polyurea	Permanent Raised
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EE) Install temporary pavement markings and temporary pavement markers on interim layers of pavement as follows:

<u>Road Type</u>	<u>Marking</u>	<u>Marker</u>
1. All concrete pavement	4" (100 mm) Tape	Temporary Raised
2. All asphalt pavement	4" (100mm) Paint	Temporary Raised

FF) Tie proposed pavement marking lines to existing pavement marking lines.

GG) Replace any pavement markings that have been damaged by the end of each day's operation.

HH) Place at least two applications of paint on new asphalt with temporary traffic patterns which will remain in place over three (3) months. Place additional applications of paint upon sufficient drying time, as determined by the Engineer.

TEMPORARY/FINAL SIGNALS

II) Notify the Engineer two (2) months before a traffic signal installation by others is required.

JJ) Others will shift and revise all signal heads.

MISCELLANEOUS

KK) Police may be used to maintain traffic through intersections.

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SIGNING SCOPE OF WORK:

General: The Signing plans will be prepared by the Design Build (DB) team in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD), the NC Supplement to the MUTCD, NCDOT Standard Specifications for Roads and Structures (January 2002), the NCDOT Roadway Standard Drawings (January 2002) for the design and development of signing plans, the latest Standard Specifications for Structural Supports for Highway signs, Luminaires, and Traffic Signals published by AASHTO, and the contract requirements for Signing plan design and preparation including specific submittal requirements for Department review (attached). All electrical installations must meet NEC, State, and local codes. All electrical/electronics equipment and devices must be UL approved and listed.

Specific Signing Items:

Signs Furnished by Design Build Team: The signs will be furnished by DB team according to the specifications provided by the Department.

Sign Design: The DB team will be responsible for all type A, B, and D sign designs for overhead and ground mounted signs. The DB team will be responsible for determining, sizing, and locating all type E (warning and regulatory signs) and type F signs (route marker assemblies).

Sign Locations: The DB team will be responsible for determining the station locations for all signs and overhead structures. The DB team also must coordinate with known existing and future projects to avoid sign placement in locations where their usefulness will be short-lived.

Overhead Sign Assemblies: All overhead sign assemblies will be designed and fabricated by the DB team and must meet all Department design requirements. The coordination with future projects should be considered when designing and fabricating overhead sign assemblies. The DB team is responsible for performing any structure analysis on any existing overhead sign assembly structure that has been modified for reuse. The windspeed for use in the design is 100 MPH and the windload area is the rectangular area figured from 25% larger than the highest sign on the assembly and extended 4' from the left and right furthest edges of the signs on the assembly. When overhead structure is not protected with guardrail, a minimum of 40' from the edge of the travel lane to the center of the support is required. When guardrail rail protection is provided, the supports should be placed 20' from the edge of the travel lane to the center of the support. No walkway, handrail, or safety chains shall be required. Examples of these structure line drawings completed for other projects will be provided upon request. See Contract Requirements for plan requirements and submittals. Early coordination with the roadway and structural design groups will be necessary to ensure that Overhead median barrier support designs be completed in a timely manner.

Ground Mounted Support Designs: NCDOT will provide the software for support design. DB team is responsible for all design, fabrication, and installation. Instructions for loading support design software will be available via CD.

Field Verifications of Supports: Field verification of ground mounted and overhead assemblies is required to be completed by DB team prior to fabrication of supports and submittal of shop

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drawings for overhead structures to ensure safety requirements are met. This verification includes the S-drops, offsets, type support, station locations, and recalculation of support sizes for ground mounted signs; and for overhead assemblies includes S-drops, actual slopes at upright locations, lane dimensions, orientation of signs over lanes, offsets, guardrail or other protection dimensions, and windload area design requirement. The DB team will submit field verifications to the Department for review. Once approved by the Department, these revised sheets will be sealed by the DB team, and submitted back to the Department for inclusion in the as built plans. Electronic files of these revised plan sheets are required to be submitted to the Department.

Guardrail or Other Protection for Signs and Overhead Assemblies: The DB team will be responsible for determining and designing any protection for sign installations and coordinating this design work with the Department for approval.

Overhead Sign Lighting: The DB team will be responsible for all overhead sign lighting designs. The lighting design requirements and submittals will be provided via CD. The lighting system will be Lumitrack (See Special Provision) except on cantilever structures with only one sign.

Power for Overhead Sign Lighting and DMSs: The DB team will be responsible for establishing power for all overhead signs. For additional information, see ROW and Utility scope details.

Solar Lighting: The DB team shall provide solar lighting systems for two overhead sign assemblies. The two overhead structures will be advance guide signs on I-540. One structure will be located in the eastbound lane and will light the advance guide sign for the US 64/US 264 interchange. The second structure will be located on the westbound lane, and will light the advance guide sign for US 64 (Business).

The solar system shall meet the following minimum requirements:

System operating temperature must be -40 degree C to 85 degree C

The system must operate within 0 to 100% humidity with full condensation and precipitation

All metallic part must be aluminum or stainless steel

The system must be protected with adequate overcurrent protection and grounding equipment

Power generation system must carry a minimum of 25 years warranty

Power storage system must carry a minimum of 6 years warranty and must be completely sealed and maintenance free and equipped with pressure release vent(s)

Power storage system must have capacity to light signs for 5 of the longest night with no solar input

The system must have a charge controller with a high voltage disconnect of 15.5V and a low voltage disconnect of 10.75V for a 12V system

The charge controller must have a Dusk and Dawn voltage detection of 1 and 8 to operate the system thus, eliminating need for an external photocell

The light source must have a minimum life of 24000 hours

Solar panel brackets shall have vertical rotation of 90 degrees and horizontal rotation of 360 degrees. Tilt angle per manufacturer recommendation

The DB team shall provide a detailed system specification describing the following:

System and sub-system's parts

Materials' specifications

WAKE

- Electrical, Mechanical, chemical, and environmental characteristics
- Operational and functional requirements
- Design and testing requirements
- Warranty requirements

The following documents, drawings and calculation must be provided:

- System's electrical, mechanical, and structural drawings sealed and signed by a NC registered professional engineer
- Structural calculations, energy storage and load calculations
- Point to point lighting analysis for sign lighting meeting NC Standards for Roads and Structures
- Any other relevant information deemed necessary by NCDOT staff reviewing design and construction submittals.
- User's manual, maintenance, and operational guides
- Troubleshooting guide

Following the installation of the system and acceptance by the Department, the DBT shall maintain the system for 108 days. During this period, the DBT shall repair and bring back the system to a fully operational state within 72 hours of notification. A record shall be generated and submitted to the Department upon successful completion of a maintenance call.

Signing Typical Sheets: Sheets for use in summarizing pay items, standard specifications, and quantities and sheets for compiling type E signs and type F signs will be provided by the Department compact disk. Typical sheets showing NCDOT signing standards for interchanges will also be provided for design reference.

Removal and Disposal of Existing Signs: The DB team will be responsible for determination of existing signs that will no longer be needed upon completion of the project, such as on –Y– lines and project tie-ins. The DB team will be responsible for removal and disposal of these signs and supports. These signs will need to be shown and noted on the plan view sheets of the signing plans designed by DB team.

Signing Project Limits: The signing project limits will extend beyond the construction limits of this project to install the two Dynamic Message Sign Assemblies, one Dynamic Message Sign on an existing structure on R-2547 BB,C,CC (Knightdale Bypass Design Build) and several advance guide signs. Coordination with the contractors for R-2000G and R-2547 BB,C,CC will be required to install the three DMS as well as any proposed overhead sign structure and modification to any existing sign structures.

Final Signing Design Plans: Final Signing Plans must be approved by the Department.

Signing Construction Revisions: Any construction revision must be submitted to the Department for approval.

Dynamic Message Sign System: DMS typical drawings and special provisions will be provided by NCDOT. The DB team shall design, develop, build, test, and deploy each DMS, and the DMS system in full compliance with the requirements of the DMS special provisions except sections 4 and 7. For full compatibility with the existing systems, only 3M signs as approved and built under

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state project U-0092B or Daktronics signs as approved and built under state project R-2547 will be acceptable.

DMS Communications: Each DMS will be linked to the TRTMC (Triangle Regional Transportation Management Center) via a fiber optic network. Please refer to the ITS Scope of work for details of the fiber optic materials and equipment.

DMS Locations: The proposed locations for the DMSs are as follows:

US 64/US 264 Westbound Sta. 99+40 -L- (R-2547C)	One DMS sign on an existing structure
I-540 Eastbound +/- Sta. 446+50 (R-2000G)	One DMS sign and structure
Approximately 2 miles prior to I-540 interchange, on the existing Eastbound US 64 (Business)	One DMS sign and structure

Dynamic Message Sign (DMS) Assemblies: Two (2) new Dynamic Message Sign Assemblies are proposed to be included on this project. Some of these DMS assemblies may also include static signs. The DB team will be required to determine station locations for these assemblies, design structure line drawings including dead load, DMS notes and details, and all other requirements for overhead sign assemblies, complete field verifications, design shop drawings for NCDOT approval, provide and install signs and assemblies, meet all requirements of the DMS system special provision, and establish power for these signs. The DB team shall provide mounting details and design drawings for review and approval prior to installation. Only Full Span (minimum of two vertical support) steel structures with boxed trusses will be allowed for DMS installations.

Requirements For The Preparation Of Signing Plans

I. Signing Information Available Electronically Per Request.

Electronic information prepared by Signing Section is available per request:

Non-proprietary computer software for support and sign design is included in this information.

Description of Work Required of Design Build (DB) Team

An understanding of the signing sections of the MUTCD, NC Supplement to the MUTCD, NCDOT Standard Specifications, and NCDOT Roadway Standard Drawings are required for design and development of signing plans.

A. Signing Plan Preparation: Prepare signing plans (SP) on Microstation J and include the following information and supporting documentation:

1. General Requirements: Accurate 1" = 100', (for metric projects 1:1000), CADD drawings of roadway plans, hereafter referred to as signing plan view sheets, which show pavement, paved shoulders, bridges, culverts, guardrail, drainage pipe, survey lines, right-of-way lines, stationing as labeled on roadway plans, equalities, north orientation for each sheet, signalized intersections labeled, beginning Signing project station, and ending Signing project station. Proposed traffic flow

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arrows shall be shown on these sheets at the beginning and end of each sheet, at overhead sign locations, and following any lane transitions.

2. Sign Locations: Locations of re-erected existing signs, existing signs remaining in place, proposed signs, and future signs by station on L-lines, Y-lines, and ramps is required except when stationing is not available. When stationing is not available, such as outside of the project limits, signs are required to be dimensioned from a fixed point or sign spacing shall otherwise be indicated on plans. Graphic representation of all existing, proposed, and future signs on the L-lines, Y-lines, and ramps are to be positioned on the plans as traffic would see them.

3. Sign Design: Signs will be designed to accommodate future messages when necessary. Determination of type E and F signs will be made by the DB team and included in signing plans.

4. Ground Mounted Support Design for Type A and B Signs: Determination of S dimensions from X-sections (or from field survey when X-sections are not available) is required for type A and B ground mounted signs. Design of supports is required using these S dimensions. Support chart including support sizes, lengths, and weights, for all type A and B ground-mounted signs is required. (Spreadsheets are available electronically through FTP.)

5. Type D signs: A chart including sign number, sign size, and number of U channel posts for all Type D signs is required.

6. Special Provisions: Project Special Provisions for special signing items are required to be written by the DB team and sealed by a professional engineer of the DB team.

7. Overhead Sign Assembly: An overhead sign assembly cross-section sheet is required for each overhead sign assembly, hereafter referred to as a structure line drawing. These sheets include lane widths, slopes, location of supports, S-dimensions at support locations, positioning of signs relative to travel lanes, sign messages and / or future messages, future signs, minimum and maximum vertical clearance, existing and proposed guardrail, walkway detail (if required), labeling of facility and direction of travel, windload and deadload requirements to be used for the design of structure and footings, and all applicable notes.

8. Coordinate With Other Traffic Engineering Plan Requirements : The DB team is required to coordinate with the Traffic Control and Pavement Marking & Delineation plans when locating and designing overhead signs and sign assemblies, lane drop signing, and “All Traffic Exit” signing and to ensure that they match the requirements of the signing plans. The DB team is required to label signalized locations on the signing plans.

9. Requirements for Sign Lighting Design: The DB team must perform Point-to-Point Computer Aided Lighting Analysis for each sign as required by section 905 and 1097 of NC Standard Specifications.

B. Signing Plan Submittals: The DB team shall make submittals for review by the Traffic Engineering and Safety Systems Branch Signing Section at the following milestones:

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Note: 1) The Signing Section may combine or eliminate milestone submittals depending on project specifics.

1. Initial SP review: 2 (1/2 size) sets of Signing Plans and 2 copies of roll out 1/2 size plan view consisting of the signing plan view sheets with all existing, proposed, future signs (including messages) located in the format of the final product. All necessary sign relocations are also required to be included in this submittal. The approval of this review shall complete 50% of the SP work.

Submittal of 1 (1/2 size) corrected set of initial SP is required for review by field personnel and FHWA.

2. Interim SP review: 2 (1/2 size) sets of plans and 2 copies of roll out 1/2 size plan view with plans consisting of the corrected signing plan view sheets with all signs located, completed type E and F sign sheets, ground-mounted sign support chart with support designs and design calculation information (S-Dimension Worksheets), structure line drawings, and lighting design sheets completed in the format of the final product. The approval of this submittal shall complete 90% of the SP work.

Submittal of 1 (1/2 size) corrected set of interim SP is required for approval by Signing Engineer.

3. Final SP review: 2 (1/2 size) sets of plans and 2 copies of roll out 1/2 size plan view sheets with plans consisting of the summary of quantities sheet with list of applicable Roadway Standard Drawings, quantities estimate and computations, draft of Project Special Provisions (other than those prepared and sealed by NCDOT), and all corrected signing sheets and supporting documentation required in the 50% submittal. The approval of this submittal shall complete 100% of the SP work.

4. Final Plan submittal: Original sealed set of approved signing plans and 5 (1/2 size) copies, original quantities estimate and computations, sign designs in binder including cover sheet listing signs (form for cover sheet available electronically through FTP), original of Project Special Provisions sealed by Professional Engineer of DB team (see II.A.6. for when required), design files on CD that have name of sealer, registration number, and date of sealing inserted where seal, signature, and date are located on original plans, and all other supporting documentation shall be submitted for final acceptance by the Signing Section of the Traffic Engineering and Safety Systems Branch. The approval of this submittal shall complete 100% of the SP work.

C. Final plans shall meet the approval of the Department. Said approval shall not relieve the DB team of liability or the responsibility to correct any error in their plans or computations after the 100% Final Plan Submittal. The DB team will be required to make any such corrections without additional compensation.

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III. Work Standards

A. The plans, sign designs, sign support designs, design and quantity calculations, project special provisions, any other supporting documentation, and design files are required on CDs and shall be submitted to the Department upon completion of the work and become the property of the Department. Cadd work units that are compatible with NCDOT are required such that when plans are printed by NCDOT, plans will be identical to the hard copy of what was submitted by DB team.

B. All plan sheets shall be 34" x 22" in finished dimensions. The Department may furnish the DB team with sheets to incorporate into their plans prior to final plan reproductions.

C. All plan sheets shall conform to the requirements of the signing section. A 4 ½ " x 4 ½ " area for full size sheets, directly below the project information block in the upper right corner of all sheets, shall be left blank and unobstructed.

D. Reproduction

1. The DB team shall be responsible for providing the following:

At 100%: 1 full size original set of plans sealed by Professional Engineer

The DB team shall be responsible for reproduction of the signing plans as necessary to provide the following bond prints:

At 50%: 2 (1/2 size) sets interim SP review prints; 2 copies of roll out ½ size plan view;

1 (1/2 size) set of corrected interim SP review prints;

At 90%: 2 (1/2 size) sets final SP review prints; 2 copies of roll out ½ size plan view;

At 100%: 5 (1/2 size) copies of approved final SP sealed by Professional Engineer;

1 roll out ½ size plan view.

E. Project Special Provisions - the North Carolina Department of Transportation Standard Specifications for Roads and Structures, 2002, and the Standard Special Provisions issued by the Division of Highways shall apply for materials and construction on all work described above. The DB team shall prepare thorough and complete Project Special Provisions covering those items of material, work, and other conditions for the signing items of the project which are not covered at all, or not covered as desired in the Standard Specifications or Standard Special Provisions. These Project Special Provisions shall be submitted for review at the time prints of final plans are submitted for review. The 100% submittal of these Project Special Provisions shall be sealed by a Professional Engineer of the DB team.

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R/W UTILITY SCOPE OF WORK:

Overview: The Design Build Firm shall be responsible for coordinating all utility relocations. Coordination shall include any necessary utility agreements when applicable. The Firm will be responsible for non-betterment utility relocation cost when the utility company has prior rights of way/compensable interest. The utility company will be responsible for the relocation cost if they can not furnish evidence of prior rights of way or a compensable interest in there facilities.

Preparation for relocating utilities within the existing or proposed highway Rights of Way.

A. The Design Build Firm will be required to use the guide lines as set forth in the following:

- (1) NCDOT Utility Manual – Policies & Procedures for Accommodating Utilities on Highway Rights of Way.
- (2) Federal Aid Policy Guide – Subchapter G, Part 645, Subparts A & B
- (3) Federal Highway Administration’s Program Guide, Utility Adjustments & Accommodations on Federal Aid Highway Projects.
- (4) NCDOT Construction Manual Section 105-8
- (5) NCDOT Right of Way Manual – Chapter 16 “Utility Relocations”
- (6) NCDENR Public Water Supply – Rules governing public water supply.
- (7) NCDENR Division of Water Quality – Title 15A – Environment and Natural Resources.

B. NCDOT will provide the best available information pertaining to the existing utilities. The Design Build Firm will be responsible for confirming the location of the utilities, type of facility and identify the utility owner in order to coordinate the relocation of any utilities in conflict with the project.

Arrangements for Protection or Adjustments to existing utilities

A. The Design Build Firm will make the necessary arrangements with the utility owners for adjustments, relocating or removals where the Firm and Utility Company determine that such work is essential for safety measures and performance of the required construction.

The Design Build Firm shall not commence work at points where the highway construction operations are adjacent to utility facilities, until making

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arrangements with the utility company to protect against damage that might result in expense, loss, disruption of service or other undue inconvenience to the public or utility owner. The Design Build Firm shall be responsible for damage to the existing or relocated utilities resulting from his operations. In the event of interruption of any utilities by the project construction, the Design Build Firm will promptly notify the proper authority (Utility Company) and cooperate with the authority in the prompt restoration of service.

The Design Build Firm should plan to accommodate for certain utility adjustments, reconstruction, new installation and routine maintenance work that may be underway or take place during the progress of the contract.

- B. In the event of a utility conflict, the Design Build Firm will request that the utility company submit relocation plans (Highway Construction Plans to be provided by the Design Firm to Utility owners) showing existing utilities and proposed utility relocation for approval by the NCDOT.

The Firm will be required to submit (3) three copies of the Utility Relocation Plans to the NCDOT for review and approval prior to relocation work beginning. The Firm will also be responsible for submitting the appropriate agreements to be used with the relocation plans (See Agreements under line items E & F). After the review process is complete, the NCDOT Right of Way Utility Section will submit one (1) copy of the Utility Relocation Plans, executed agreements and any necessary comments back to the Firm. The Utility Section will also submit a copy of the approved Utility Relocation plans to the Department's Resident Engineer. If the Utility Relocation Plans are approved subject to changes, it will be the Firms responsibility to coordinate these changes with the appropriate utility company.

- C. The cost in relocating utilities due to the highway construction will be the responsibility of the Design Build Firm except when the utility company does not have compensable interest in their existing facilities. A compensable interest is identified as follows:

- (1) Existing or prior easement rights within the limits of the project, either by recorded right of way or adverse possession (Utility occupying the same location for twenty (20) plus years outside the existing highway rights of way).
- (2) Entities covered under General Statute 136-27.1. Statute requires the NCDOT to pay the non-betterment cost for certain water and sewer relocations.

- D. If the Design Build Firm elects to make arrangements with a utility company to incorporate a new utility installation or relocation as part of the highway construction, the utility work done by the firm and the associated cost for the work will be negotiated and agreed upon between the firm and the utility company.

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-It is recommended that the Design Build Firm make arrangements to relocate water or sewer line facilities in which the entities are covered under General Statute 136-27.1 or occupying a compensable interest. The non-betterment cost associated with this work will be borne by the Firm.

-If the Design Build Firm is requested, in writing, by an entity to relocate, upgrade or incorporate new water and sewer facilities as part of the highway construction, designs shall be coordinated with the Utility Owner and the NCDOT Design Services Utility Unit. Coordination shall include preparation of all plans for needed agreements and permits. The Firm would be responsible for all permit fees.

-If the Design Build Firm elects to make arrangements with a Governmental Agency for proposed utility construction, in which the Agency will participate in the cost for work to be performed by the Firm, the Firm will be responsible for negotiating all cost associated with the proposed construction. Once the Firm and the Agency agree on a plan and a lump sum estimated cost for the utility construction, the Firm will be responsible in submitting five (5) sets of 11 x 17 utility construction drawings to the Right of Way Utility Section for further handling. Each set should include a title sheet, plan sheets, profiles and special provisions if available. Also, a letter from the Agency agreeing to the plans and lump sum cost must accompany this package. The NCDOT will reimburse the Firm the estimated lump sum cost under a Supplement Agreement. The necessary Utility Agreement to the Agency for reimbursement will be a two party agreement between the NCDOT and the Agency.

E. The Design Build Firm will be required to utilize the NCDOT Standard Utility Encroachment Agreements as necessary in relocating utilities. The Encroachment Agreements will be used under the following conditions:

- (1) If a utility company is not occupying a valid right of way/compensable interest and the proposed relocation will place the relocated utilities with the existing or proposed highway rights of way.
- (2) For all new utility installations within the existing or proposed highway rights of way. This includes all water and sewer lines owned by entities covered under General Statute 136-27.1.

F. If a utility company can show evidence of prior rights of way or a compensable interest in their facilities, the non-betterment utility relocation cost and the agreement will be handled between the firm and the utility company. The Design Build Firm will be required to utilize the NCDOT Three-Party Utility Relocation Agreement as necessary in relocating utilities.

- The NCDOT Assistant Branch Manager of Right of Way must execute approved agreements on Design Build highway projects. The Utility Relocation Agreements and encroachment agreements are available from the NCDOT Right of Way Utility Section. See Pages 59 and 60 of the NCDOT Utility Manual on

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for the different types of encroachment agreements available for use.

Requirements for attachments to existing and/or proposed structures

- A. Attachments to structures should be avoided where feasible. Attachments should only be considered when other alternatives are cost prohibitive or not feasible due to environmental or geographical features. Attachments are prohibited under the following conditions:
- (1) No utility attachments will be allowed to bridges carrying an interstate/Bypass System over streams, other roadways or railroads. (No parallel utility installations within a C/A)
 - (2) No attachments will be allowed to cored-slab bridges.
 - (3) No attachments will be allowed to curved bridges.
- B. Attachments to structures, if allowed, shall meet the following criteria.
- (1) No attachments will be allowed below the bottom of the beams and/or girders.
 - (2) Drilling of or attachments to beams and/or girders will not be allowed. Attachments will only be allowed to the bottom of the bridge deck.
 - (3) For water and sewer force mains, only restrained joint ductile iron pipe will be allowed.
 - (4) A minimum of 18" of clearance to beams and/or girders shall be maintained if possible.
- C. Documentation of adverse conditions or cost estimates of all feasible alternatives should be submitted to the NCDOT Design Service Utility Unit when seeking approval of a structure attachment. Cost estimates should consider all costs involved with each alternative and impacts to the utility and the highway project as a whole.

Preparation for Communication Cables/Electrical Services for Lighting, Signing & ITS Devices

- A. Prior to establishing the location for new meter poles, the Design Build Firm will coordinate with the local Power Distribution Company concerning accessibility of E/C Service and safety in maintenance of the meter.

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- B. All service taps that require a parallel installation within the C/A will require plans for review and approval by the NCDOT prior to the installation.
 - Preferably, parallel service installations within a C/A should be buried and located as close to the R/W line as practical. However, due to unusual circumstances the NCDOT may approve aerial installations.
- C. The Design Build Firm will be responsible for any cost concerning service taps provided by the utility company.

Preparation for Adjusting Existing Utilities due to Proposed Traffic Management Systems Fiber Optic Communication Cables

- A. See Traffic Management Scoping Outline
- B. The Design Build Firm will be responsible for all cost in coordinating and adjustments of utilities for any proposed ITS Communication Cable.

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RIGHT OF WAY SCOPE OF WORK:**SCOPE OF SERVICES AND RESPONSIBILITIES**

The DESIGN-BUILDER, will employ qualified, competent personnel who are currently approved by the NCDOT Right of Way Branch, herein after referred to as The DEPARTMENT, to provide all services necessary to perform all appraisal, appraisal review, negotiation and relocation services required for completion of the project in accordance with G.S. 136-28.1 of the General Statutes of North Carolina, as amended, and in accordance with the requirements set forth in the Uniform Appraisal Standards and General Legal Principles for Highway Right of Way, the North Carolina Department of Transportation's Right of Way Manual, the North Carolina Department of Transportation's Rules and Regulations for the Use of Right of Way Consultants, the Code of Federal Regulations, and Chapter 133 of the General Statutes of North Carolina from Section 133-5 through 133-18, hereby incorporated by reference, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The DESIGN-BUILDER agrees to perform the services as set forth herein and furnish and deliver to The DEPARTMENT reports accompanied by all documents necessary for the settlement of claims and the recordation of deeds, or necessary for condemnation proceedings covering said properties. The DESIGN-BUILDER, acting as an agent on behalf of the State of North Carolina shall provide right of way acquisition services for Contract Number C200725, I.D. Number R-2641 (East Wake Expressway from Proposed US 64 Bypass to US 64 East) in Wake County.

The DESIGN-BUILDER shall carry out the responsibilities as follows:

- ◆ With respect to the payments, costs and fees associated with the acquisition of right of way in this contract, The DEPARTMENT shall be responsible for only direct payments to property owners for negotiated settlements, recording fees, any relocation benefits, and deposits and fees involved in the filing of condemnation and any claims. The DEPARTMENT will assume responsibility for all costs associated with the litigation of condemned claims, including testimony by the appraiser(s). The DESIGN-BUILDER shall be responsible for all other acquisition related payments, costs and fees.
- ◆ A DEPARTMENT representative will be available to provide technical guidance on right of way acquisition procedures and to make timely decisions on approving relocation benefits and approving administrative adjustment settlements on behalf of The DEPARTMENT over and above the authority granted to The DEPARTMENT Right of Way Consultant Project Managers.
- ◆ Submit a right of way project tracking report and right of way quality control plan to The DEPARTMENT. The DEPARTMENT standard forms and documents will be used to the extent possible.
- ◆ THE DESIGN-BUILDER shall provide a current title certificate for each parcel as of the date of closing or the date of filing of condemnation.

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- ◆ Prepare, obtain execution of and record documents conveying title to acquired properties to The DEPARTMENT with Register of Deeds and deliver all executed and recorded deeds and easements to The DEPARTMENT. For all property purchased in conjunction with the project, title will be acquired in fee simple or easement and shall be conveyed to "The North Carolina Department of Transportation", free and clear of all liens and encumbrances except permitted encumbrances.
- ◆ It is understood and agreed by and between the parties hereto that all reports, surveys, studies, specifications, memoranda, estimates, etc., secured by and for The DESIGN-BUILDER shall become and remain the sole property of The DEPARTMENT upon termination or completion of the work, and The DEPARTMENT shall have the right to use same for any public purpose without compensation to The DESIGN-BUILDER.
- ◆ Prepare Appraisals in accordance with The DEPARTMENT'S Uniform Appraisal Standards and General Legal Principles for Highway Right of Way Acquisitions. The DESIGN-BUILDER'S appraiser must be on The DEPARTMENT'S approved state certified appraiser list. The DESIGN-BUILDER may request its state certified appraiser be added to the approved state certified appraiser list, subject to approval by The DEPARTMENT'S State Appraiser.
- ◆ The DESIGN-BUILDER is to provide appraisal reviews complying with The DEPARTMENT'S Uniform Appraisal Standards and General Legal Principles for Highway Right of Way Acquisitions. The reviewer must determine that the appraisal meets The DEPARTMENT'S guideline and requirements, conforms to acceptable appraisal standards and techniques, does not include any non-compensable items or exclude any compensable items and that the value conclusions are reasonable and based on facts presented in the appraisal. The reviewer has the authority to approve, adjust, request additional data or corrections, or not to recommend and request another appraisal. The reviewer has the authority to approve appraisals not in excess of \$750,000.00. All appraisals showing compensation in excess of \$750,000.00 are referred to The DEPARTMENT'S State Appraiser for approval, with the written recommendation of the reviewer. The DESIGN-BUILDER'S reviewer must be on The DEPARTMENT'S approved state certified reviewer appraiser list. The DESIGN-BUILDER may request its state certified review appraiser to be added to the approved state certified reviewer appraiser list, subject to approval by The DEPARTMENT'S State Appraiser.

The DESIGN-BUILDER shall provide a right of way certification prior to entering the property.

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ROADSIDE ENVIRONMENTAL SCOPE DETAILS:

Erosion and Sedimentation Control Plans should at minimum address the following:

I. Complete Set of Plans**A. Clearing and grubbing phase**

- use correct NCDOT symbology
- utilize adequate perimeter controls (temporary diversions, silt fence, etc.)
- utilize rock measures w/ sediment control stone @ drainage outlets
- take in account existing topography
- protect existing streams
- show phasing for culverts
- show phasing for all pipes 36" or larger that are located in Environmentally Sensitive Areas (ESA)
- all jurisdictional streams should be delineated as ESA (50 ft. each side of stream)

B. Intermediate and final grade phases

- use correct NCDOT symbology
- protect proposed inlets with RIST-A, RIST-C, PIST-A, etc.
- utilize temp. slope drains and earth berms at top of fill slopes 10ft (3m) or higher or where there are super elevations above .04 and fills are greater than 5 ft (1.5m)
- utilize rock energy dissipater at outlet of slope drain.
- show any areas of streambank reforestation (based on permit)
- devices at all drainage turnouts should utilize sediment control stone (TRSD-B, TRSC-A, etc.)
- need adequate silt storage for 2400 cubic feet per acre
- use matting/roving on all ditch lines (non-jurisdictional streams) with 1.25% grade or larger and all cut/fill slopes 2:1 or greater where it is difficult to establish vegetation and/or slope failure is occurring.
- show erosion control for period between Clearing & Grubbing and Final Grade

II. Detail Sheets and Notes

- A. Reforestation sheet(s): regular, wetland, streambank showing appropriate species
- B. Construction entrance detail
- C. Special details and notes

III. Title Sheet

- A. Show correct notes: HQW, ESA, critical habitat, clearing and grubbing, etc.
- B. Show correct standards for project
- C. List of standard NCDOT symbology

IV. Special Provisions

- A. Included as an attachment to this scope are the NCDOT Special Provisions that may be applicable to the Erosion and Sedimentation Control Plans. All included Special Provisions may or may not be needed and additional special provisions may be necessary.

V. Miscellaneous

- A. Plan submittal must include all pertinent design information required for review, such as design calculations, drainage areas, etc.
- B. The NCDOT Roadside Environment Unit (REU) will provide a sample set of Erosion and Sedimentation Control plans (including any special details or special provisions used by the NCDOT REU) and MicroStation Erosion Control tool palette to the Designer/Planner for reference if requested.
- C. Plans must address any environmental issues raised during the permitting process.
- D. Sufficient time must be allowed for the Designer/Planner to make any changes to the Erosion and Sedimentation Control Plans deemed necessary by the NCDOT REU
- E. All Erosion and Sedimentation Control plans must be approved by the NCDOT REU before any land disturbing activities can commence.
- F. Temporary access and haul roads, other than public roads, constructed or used in connection with the project shall be considered a part of the project.
- G. Borrow or waste areas that are part of the project will require a separate Erosion and Sedimentation Control plan, unless the borrow or waste activity is regulated under the Mining Act of 1971, or is a landfill regulated by the Division of Solid Waste Management (NCDENR).
- H. Whenever the Engineer determines that significant erosion and sedimentation continues despite the installation of approved protective practices, the Design-Builder will be required to and shall take additional protective action.
- I. AN APPROVED EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT EXEMPT THE BUILDER FROM MAKING EVERY EFFORT TO CONTAIN SEDIMENT ONSITE.

Incentive for Receiving No Violations of Laws, Ordinances, Orders or Decrees:

The Design-Builder shall abide by all environmental laws, ordinances, orders or decrees and not be issued Notices of Violations (NOV) nor Cease and Desist (C&D) orders by regulatory agencies. In addition the Design-Builder shall conduct construction activities such that the Department erosion control compliance inspections do not result in the issuance of Immediate Corrective Action (ICA) reports by the Field Operations Engineer or his designated representative. As an incentive, for each month beginning at the initial commencement of the project construction, the Design-Builder shall receive additional payment for not receiving NOV's from regulatory agencies, ICA's from the Department or Cease and Desist orders from the Corp of Engineers.

Payment shall be in the amount of **\$5,000.00** each month in which the Design-Builder does not receive one or more NOV's, ICA's, or C&D order. If the Design-Builder receives any of the before mentioned violations at anytime during this monthly period, the \$5,000.00 incentive will be forfeited.

The Design-Builder shall notify the Engineer in writing upon commencement of construction activities on the project. The monthly period shall begin upon verification by the Engineer that construction has started.

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Erosion Control Liquidated Damages:

The Design-Builder shall take all reasonable precaution to comply with all regulations of all authorities having jurisdiction over public and private land governing the protection of erosion and sedimentation. Any fines, remediation required, or charges levied against the Department for failing to comply with all rules and regulations concerning erosion and sediment control, due to the Design-Builder's negligence, carelessness, or failure to implement the erosion and sediment control plan and specifications, will be deducted from monies due the Design-Builder on his contract. In addition to said fines, remediation required, or charges levied, any associated engineering costs or actions taken by the Department in order for the Department to comply with rules and regulations, as a result of the Design-Builder's negligence, carelessness, or failure to implement the erosion and sediment control plan and specifications, will be deducted from the monies due to the Design-Builder.

Seeding and Mulching:

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined by the Engineer. All rates are in pounds per acre (kilograms per hectare).

January 1 - December 31

50# (55kg) Tall Fescue
 5# (6kg) Centipede
 50# (55kg) Pensacola Bahiagrass
 500# (560kg) Fertilizer
 4000# (4500kg) Limestone

Slopes 2:1 and Steeper and Waste and Borrow Locations:

January 1 - December 31

75# (85kg) Tall Fescue
 50# (55kg) Pensacola Bahiagrass
 500# (560kg) Fertilizer
 4000# (4500kg) Limestone

All areas adjacent to lawns must be hand finished as directed by the Engineer to give a "lawn type appearance". Remove all trash, debris, and stones $\frac{3}{4}$ inch (19 mm) and larger in diameter or other obstructions that could interfere with providing a smooth "lawn type appearance". Incorporate a special seed mix containing the following application at these areas.

Type I and Type II shall be separate varieties chosen from the list below.

Approved Tall Fescue Cultivars:

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Adventure	Adventure II	Amigo	Anthem
Apache	Apache II	Arid	Austin
Brookstone	Bonanza	Bonanza II	Chapel Hill
Chesapeake	Chieftain	Coronado	Crossfire II
Debutante	Duster	Falcon	Falcon II
Finelawn Petite	Finelawn	Finelawn I	Genesis
Grande	Guardian	Houndog	Jaguar
Jaguar III	Kentucky 31	Kitty Hawk	Monarch
Montauk	Mustang	Olympic	Pacer
Phoenix	Pixie	Pyramid	Rebel
Rebel Jr.	Rebel II	Renegade	Safari
Shenandoah	Tempo	Titan	Tomahawk
Trailblazer	Tribute	Vegas	Wolfpack
Wrangler			

Add 10# (12kg) Kobe or Korean Lespedeza to the above mixtures May 1 - August 31.

On cut and fill slopes 2:1 or steeper add 30# (35 kg) Sericea Lespedeza
January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis.

Temporary Seeding:

Fertilizer shall be the same analysis as specified for "Seeding and Mulching" and applied at the rate of 400 pounds (450 kilograms) and seeded at the rate of 50 pounds (55 kg) per hectare. Kobe or Korean Lespedeza, German Millet or Browntop Millet shall be used in summer months and Rye Grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

Fertilizer Topdressing:

Fertilizer used for topdressing on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre (560 kg per hectare). Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 10-20-20 analysis.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre (560 kg per hectare). Upon written approval of the Engineer, a different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis.

WAKE**Supplemental Seeding:**

The kinds of seed and proportions shall be the same as specified for "Seeding and Mulching", with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding may vary from 25# to 75# per acre (28kg to 85kg per hectare). The actual rate per acre (hectare) will be determined by the Engineer prior to the time of topdressing and the Design-Builder will be notified in writing of the rate per acre (hectare), total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

Mowing:

The minimum mowing height on this project shall be 4 inches (100 mm).

Specialized Hand Mowing:

The work covered by this section consists of specialized hand mowing around or under fixed objects, including but not limited to guardrails, signs, barriers and slopes in a method acceptable to the Engineer.

The work of specialized hand mowing shall be completed with mechanically powered trimmers, string trimmers, hand operated rotary mowers, or self-propelled mowers of sufficient size and quality to perform the work timely and efficiently.

Seeding Equipment:

Seeding Equipment shall remain on site at all times. The equipment shall be in number that will allow all areas that require Seeding and Mulching to be accomplished.

Stage Seeding of Areas Outside of Environmentally Sensitive Areas (ESA):

The work covered by this section shall consist of the establishment of vegetated cover on cut/fill slopes as grading progresses. Seeding and Mulching shall be done in stages on cut/fill slopes which are greater than 10 feet (3m) in height or greater than 2 acres (0.8 ha) in area. Each stage shall not exceed the limits stated above.

Minimize Removal of Vegetation

The Design-Builder shall minimize removal of vegetation at stream banks and disturbed areas within the project limits as directed by the Engineer.

WAKE**Stockpile Areas**

The Design-Builder shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed by the Engineer.

Stock Piling of Temporary Erosion Control Materials:

A sufficient quantity of Erosion and Sediment Control materials (rock, silt fence, etc) must be stockpiled on the project site for each section opened to grading operations.

Reforestation:

Reforestation will be planted on backslope cuts, 10 feet above ditchline to the clearing limits.

Reforestation is not shown on the plan sheets. See the reforestation detail sheet.

Seasonal limitations: Seedlings shall be planted from November 15 through March 15.

Seedlings shall be planted as soon as practical following permanent Seeding and Mulching.

Seedlings shall be planted in a 16 ft. (5 meters) wide swath adjacent to mowing pattern line.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay ("kaolin") or a superabsorbent that is made to be used as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval. With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Streambank Reforestation:

Streambank reforestation will be planted in areas denoted in permit application with modifications that may be required to secure permit. See the streambank reforestation detail sheet.

Seedlings shall be planted as soon as practical following permanent seeding and mulching. Type I seedlings shall be planted along both streambanks. Type II seedlings shall be planted in a 26 ft. (8 meters) wide swath from top of bank along both sides of stream.

Seasonal limitations: Seedlings shall be planted from November 15 through March 15.

Root dip: the roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay ("kaolin") or a superabsorbent that is made to be used as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

Seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

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Environmentally Sensitive Areas:

This project is located in an “Environmentally Sensitive Area”. This designation requires special procedures to be used for clearing and grubbing, temporary stream crossings, and grading operations within the area identified on the plans. This also requires special procedures to be used for seeding and mulching and staged seeding within the project. It may be advantageous to video tape these areas prior to beginning construction in them.

Clearing and Grubbing:

In areas identified on the erosion control plans as “Environmentally Sensitive Areas”, the Design-Builder may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations as described in Section 200, Article 200-1, in the Standard Specifications. The “Environmentally Sensitive Area” shall be defined as a 50 foot (16 meter) buffer zone on both sides of the stream (or depression) measured from top of streambank (or center of depression). Only clearing operations (not grubbing) shall be allowed in this buffer zone until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

Grading:

Once grading operations begin in identified “Environmentally Sensitive Areas”, work will progress in a continuous manner until complete. All construction within these areas must progress in a continuous manner such that each phase is complete and areas permanently stabilized prior to beginning of next phase. Failure on the part of the Design-Builder to complete any phase of construction in a continuous manner in “Environmentally Sensitive Areas” as specified will be just cause for the Engineer to direct the suspension of work in accordance with Section 108-7 of the Standard Specifications.

Temporary Stream Crossings:

Any crossing of streams within the limits of this project must be accomplished in accordance with Section 107-13(b) of the Standard Specifications.

Seeding and Mulching:

Seeding and mulching shall be performed in accordance with Section 1660 of the Standard Specifications and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment. No appreciable time shall lapse into the contract time without stabilization of slopes, ditches and other areas within the “Environmentally Sensitive Areas” as indicated on the erosion control plans.

WAKE**Stage Seeding:**

The work covered by this section shall consist of the establishment of a vegetative cover on cut and fill slopes as grading progresses. Seeding and mulching shall be done in stages on cut and fill slopes which are greater than 5 feet (1.5 meters) in height or greater than 1 acre (0.4 hectares) in area. Each stage shall not exceed the limits stated above.

Impervious Dike:

The work covered by this section consists of furnishing, installing, maintaining, and removing an impervious dike for the purpose of diverting normal stream flow around the construction site. The impervious dike shall not permit seepage of water into the construction site or contribute to siltation of the stream. The impervious dike shall be constructed of an acceptable material in the locations noted on the plans.

Acceptable materials shall include but not be limited to sheet piles, sandbags, and/or the placement of an acceptable size stone lined with polypropylene or other impervious fabric.

Earth material shall not be used to construct an impervious dike when it is in direct contact with the stream unless vegetation can be established before contact with the stream takes place.

Gravel Construction Entrance:**Description:**

The work covered by this section consists of furnishing, installing, and maintaining and removing any and all material required for the construction of a Gravel Construction Entrance.

Materials:

The filter fabric shall meet the requirements of Section 1056 for Type 2 Fabric.

Stone shall be Class A Stone and shall meet the requirements of Section 1042 for Stone for Erosion Control, Class A.

Construction:

The Design-Builder shall install a Gravel Construction Entrance in accordance with the details in the plans at all points of ingress and egress until the site is stabilized.

Erosion Control on Railroad Right-of-Way

If there is sediment loss that occurs on any Railroad Right of Way, the sediment shall be removed immediately and the area regraded to original condition. The area shall then be stabilized with permanent seed and mulched according to NCDOT Standards.

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Culvert Diversion Channel:

Description:

Provide a culvert diversion channel to detour existing stream around the culvert construction site at locations shown on the plans. Work includes constructing diversion channel, disposing of excess materials, providing and placing filter fabric liner, maintaining diversion area in an acceptable condition, removing filter fabric liner, backfilling diversion channel area with suitable material and providing proper drainage when diversion channel area is abandoned.

Material:

Use local material or material specified on plans.

Provide filter fabric to meet requirements of Section 1056 for Type 2 fabric.

Construction requirements:

Grade channel according to plan with channel surface free of obstructions, debris, and pockets of low density material.

Utilize suitable material and provide disposal area for unsuitable material.

Line channel with fabric unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury top of slope fabric edge in a trench at least five inches (125mm) deep and tamp.

Make vertical overlaps a minimum of eighteen inches (450mm) with upstream fabric overlapping the downstream fabric.

Secure fabric with eleven gauge (3.05mm) wire staples shaped into a "u" shape with a length of not less than six inches (150mm) and a throat not less than one inch (25mm) in width. Place staples along outer edges and throughout the fabric a maximum of three feet (one meter) horizontally and vertically.

Note: Any temporary construction measures, including de-watering, construction access, etc. that is not specifically authorized in the existing permits, must be addressed in the permit modification application(s). Impacts that result from so-called temporary measures may not be temporary impacts. These issues must be resolved during 4B and 4C meetings and in consultation with the Office of Natural Environment.

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Special Sediment Control Fence:

Description:

The work covered by this section consists of the construction, maintenance, and removal of special sediment control fence. Build special sediment control fence according to the detail located on the plans. Place special sediment control fence as shown on the plans or as directed by the Engineer.

Materials:

(A) Posts:

Either wood or steel posts may be used. Wood posts shall be a minimum of 6 feet long (1.8 m), at least 3 inches (75 mm) in diameter, and straight enough to provide a fence without noticeable misalignment. Steel posts shall be at least 5 feet (1.5 m) in length, approximately 1 3/8 inches (35 mm) wide measured parallel to the fence, and have a minimum weight of 1.25 lb/ft (1.86 kg/m) of length. The post shall be equipped with an anchor plate having a minimum area of 14.0 square inches (9000 square millimeters), and shall have a means of retaining wire in the desired position without displacement.

(B) 1/4 inch (6.4mm) Hardware Cloth:

Hardware cloth shall have 1/4 inch (6.4mm) openings constructed from #24 gauge wire. Install hardware cloth according to the detail shown on the plans.

(C) Sediment Control Stone:

Sediment control stone shall meet the requirements of Section 1005. Install stone according to the detail shown on the plans.

Maintenance and Removal:

The Design-Builder shall maintain the special sediment control fence until the project is accepted or until the fence is removed, and shall remove and dispose of silt accumulations at the fence when so directed by the Engineer in accordance with Section 1630.

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1.0 INTELLIGENT TRANSPORTATION SYSTEMS (ITS) SCOPE OF WORK:**1.A OVERVIEW**

Design, furnish, install, and test a four (4) way, multiduct conduit system, junction boxes, delineator markers, closed circuit television cameras (CCTV), and fiber optic communications cable and associated hardware to serve as a communications backbone for the CCTV cameras and dynamic message signs (DMS). Install these devices as close as feasible to the right-of-way and/or fence line.

Other ITS projects (R-2000G and R-2547) are being constructed in this area at or near the same time as this project. Ensure that communications and CCTV equipment provided under this project are compatible and fully interoperable with existing central CCTV hardware and software. Ensure all equipment installed for fiber optic communications is compatible with the existing communications equipment deployed in the region.

The Engineer will provide authorization to the Design Builder for electrical service to be obtained in the name of the Department and for the monthly power bills to be sent directly from the utility company to the Department. The Department will be responsible for the direct payment of monthly power bills received from the utility company.

1.B PLANS AND PROJECT SPECIAL PROVISIONS

Prior to Construction, provide a detailed set of plans and project special provisions for Department review and approval. Provide as 60%, 90% and 100% submittals. Timelines to be approved by the Department. No construction on the underground conduit system, junction boxes, delineator markers, closed circuit television cameras, and fiber optic communications system of this project can begin until NCDOT has approved the 100% plans and specifications. Project Special Provisions will include but not be limited to the following information with all supporting documentation:

The project special provisions will cover all items of work, material, equipment, and methods of construction for the installation of a complete fiber optic communications system and CCTVs.

Each section of the project special provisions will contain subsections titled: Description, Materials, and Construction Method.

The Engineer will seal final project special provisions. The Engineer must be duly registered to practice engineering in North Carolina.

Submit 4 copies of the project special provisions for each review.

As part of the plan submittal, provide product information sheets containing manufacture and model numbers for all components. Submit 4 half-size copies of each plan set for review and 4 copies of all other material submitted for review. Depict proposed device locations in the plan package. Provide detailed drawings for each component, indicating types of materials proposed, installation

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details, layout of components, and fiber optic splicing details, certain typical details pertaining to the intelligent transportation systems components will be provided by NCDOT.

The Engineer will review this information and provide comments on the proposed design and components to the Design-Builder. Revise the design as directed by the Engineer and submit a revised design that reflects the Engineer's comments. The Engineer will advise the Design-Builder in writing when the design is approved for construction.

Provide NCDOT with a minimum of 20 working days for review of all ITS submittals.

2.0 ARTICLE 1700 OF THE 2002 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, REVISE AS FOLLOWS:**2.1 GENERAL REQUIREMENTS**

Page 17-1, Article 1700-1, first paragraph, revise to read:

“Furnish, install, test, integrate and make fully operational new fiber optic communications cable, new CCTV cameras, and new dynamic message signs. Route communications for all devices to each end of the project to a splice cabinet in accordance with the plans and specifications.”

2.2 Metal Pole Foundations (CCTV)

Page 17-24, Article 1742-3, paragraph 3, last sentence, revise:

“Do not install foundations over uncompacted fill or muck” to “Do not install foundations in uncompacted fill or muck.”

Page 17-24, Article 1742-3, paragraph 9, first sentence, revise:

“waterproof caulking compound” to “non-shrinking grout.”

2.3 Structure Design Of Signal Supports (CCTV POLES)

Page 17-26, Article 1744-2(A), paragraph 2, sentence 2, delete the phrase:

“in effect on the date of advertisement” and insert the words “Fourth Edition, 2001.”

Page 17-26, Article 1744-2(A), paragraph 2, sentence 2, revise:

“with a 1.3 gust factor” to “with a minimum 1.14 gust factor.”

Page 17-26, Article 1744-2(A), after paragraph 2, add the following paragraph:

“Use the following in design, which is taken from The Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 4th Edition, 2001:

The wind pressure map that is developed from the 3-second gust speeds, as provided in Article 3.8, must be used.

Signal support structures will include truck-induced gust loading and natural wind gust loading in the fatigue design, as provided for in Article 11.7.4 and 11.7.3, respectively. Designs need not consider periodic galloping forces.

The natural wind gust speed in North Carolina are assumed to be 11.6 mph (5 m/s) for inland areas.

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The fatigue importance category used in the design, for each type of structure, as provided for in Article 11.6, Fatigue Importance Factors, will be Category II unless otherwise shown on the contract plans.

Page 17-29, Article 1744-2(B), the fourth paragraph from the top, following the first sentence, add the following:

“The base plate thickness for all uprights and poles should be no less than that determined by the following criteria and design:

Case 1 - Circular or rectangular solid base plate with the upright pole welded to the top surface of base plate with full penetration butt weld, and where no stiffeners are provided. A base plate with a small center hole, which is less than 1/3 of the upright diameter, and located concentrically with the upright pole, may be considered as a solid base plate.

The magnitude of bending moment in the base plate, induced by the anchoring force of each anchor bolt will be $M = (P \times D_1) / 2$, where:

M = bending moment at the critical section of the base plate induced by one anchor bolt

P = anchoring force of each anchor bolt

D_1 = horizontal distance between the center of the anchor bolt and the outer face of the upright, or the difference between the radius of the bolt circle and the outside radius of the upright.

The critical section should be located at the face of the anchor bolt and perpendicular to the radius of the bolt circle. The overlapped part of two adjacent critical sections will be considered ineffective.

Case 2 - Circular or rectangular base plate with the upright pole socketed into and attached to the base plate with two lines of fillet weld, and where no stiffeners are provided, or any base plate with a center hole that is larger in diameter than 1/3 of the upright diameter.

The magnitude of bending moment induced by the anchoring force of each anchor bolt will be $M = P \times D_2$, where:

P = anchoring force of each anchor bolt

D_2 = horizontal distance between the face of the upright and the face of the anchor bolt nut

The critical section will be located at the face of the anchor bolt top nut and perpendicular to the radius of the bolt circle. The overlapped part of two adjacent critical sections will be considered ineffective.

The thickness of base plate of Case 2 should not be less than that calculated based on formula for Case 1.”

Page 17-30, Article 1744-2(C), paragraphs 1 and 2, revise to delete both paragraphs in their entirety.

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2.4 Fiber Optic Cable

Page 17-16, Article 1730-1, paragraph 1, sentence 1, revise:

“install single mode fiber-optic (SMFO) communications cable...” to “install seventy-two (72) fiber single mode fiber-optic (SMFO) communications cable...”

2.5 Junction Boxes

Page 17-10, Article 1716-3, last paragraph, first sentence, revise:

“250 feet (90m)” to “1000 feet (230m).”

3.0 ARTICLE 1098 OF THE 2002 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, REVISE AS FOLLOWS:**3.1 General Requirements**

Page 10-220, Article 1098-1(A), last paragraph, first sentence, revise:

“by the date of advertisement of the project” to “by the date of equipment installation.”

Page 10-223, Article 1098-1(H), replace paragraph 4 with the following paragraph:

Provide either 0.05 x 0.30 inch (1.3 x 7.6 mm) aluminum wrapping tape or 0.06 inch (1.5mm) stainless steel lashing wire for the purpose of lashing cables, except fiber optic communications cables, to a messenger cable. Use 0.045 inch (1.14 mm) stainless steel lashing wire for the aerial installation of fiber optic communications cable to messenger cable.

Page 10-221, Article 1098-1(G), after paragraph 3 add the following paragraphs:

“Provide real world coordinates for all field devices (including but not limited to controller cabinets, closed circuit television cameras, dynamic message signs, and oversized junction boxes) installed and/or modified under this project. Provide the coordinates in feet units using the North Carolina State Plane coordinate system (1983 North American Datum also known as NAD '83). Furnish coordinates that do not deviate more than 1.7 feet (1/2 meter) in the horizontal plane and 3.3 feet (1 meter) in the vertical plane. Global positioning system (GPS) equipment able to obtain the coordinate data within these tolerances may be used. Submit cut sheets on the GPS unit proposed to collect the data for approval by the Engineer. For equipment cabinets, obtain and provide the location of the cabinet. For CCTV units, obtain and provide the location of the CCTV pole to which the CCTV unit is attached. In the event the CCTV unit is attached to a structure other than a pole (such as a water tower or a building), obtain and provide the CCTV cabinet or unit position as directed by the Engineer. For dynamic message sign units, obtain and provide the position of the DMS controller/ communications cabinet. For all other devices, unless otherwise directed by the Engineer, obtain and provide the location of the device controller/communications cabinet.

Provide both a digital copy and hard copy of all information regarding the device (including to but not limited to manufacturer, model number, and NCDOT inventory number) in the Microsoft spreadsheet provided by the Department, show by example below.

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NCDO T Inv #	Name	Location	Latitude	Longitude	Manufactu rer	Model #	Comm Media	Destinati on
05- 7009	Cam 1	I-540/I-40	-78.8123	35.8625	Pelco	Spectravi sion	60 SMFO	TRTMC
05- 7010	Cam 2	NC 54/I-40	-78.7631	35.8523	Pelco	Spectravi sion	60 SMFO	TRTMC
05- 7030	HAR 1 – Johnston County	I-40 at NC 42 (mp 312)	-77.952	35.2456			Dial-up	TRTMC
05- 7001	DMS # 1	I-85 N/I-40 E, mp 159.1			Mark IV		Dial-Up	TRTMC

Provide plans of record for all splicing and splicing diagrams. Provide one durable hard copy to the Engineer at the completion of the project. Provide documentation of splicing that differs or deviates from the plans during the life of the project.”

3.2 FIBER-OPTIC CABLE

Page 10-233, Article 1098-11(A), paragraph 3, sentence 5, delete:

“Construct buffer tubes with an inner layer made of polycarbonate and an outer layer made of polyester.”

3.3 JUNCTION BOXES

Provide oversized junction boxes and covers with standard “NCDOT Fiber Optic” logos as described on Page 10-227, Article 1098-5.

4.0 REQUIREMENTS FOR CABLES CROSSING RAILROADS

4.1 Railroad Crossings

Do not commence cable routings over or under railroad-owned facilities until notification and coordination with Engineer and the appropriate railroad company has occurred. All affected railroad facilities on this project are owned by the Norfolk Southern Railway Company herein called the Railroad Company. It is the responsibility of the Design-Build firm to make contact with the Railroad Company or any party acting on their behalf regarding any wireline agreements necessary for crossing over or under any railroad facilities at the address and phone number given below. This contact is not limited to any fees required by either DMJM + HARRIS or Norfolk Southern Railway Company.

DMJM + HARRIS

260 S. Broad Street, Suite 1500

Philadelphia, PA 19102

Attn. NS Pipe & Wire Administrator

Phone Number: (215) 735-0832

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4.2 Requirements for Insurance

In addition to any other forms of insurance or bonds required elsewhere in the contract documents and prior to commencing any work, the Design-Builder will be required to provide coverage conforming to the requirements of the Federal-Aid Policy Guide outlined under 23 CFR 646A for all work to be performed on the Railroad rights(s) of way under the terms of the contract by carrying insurance of the following kinds:

4.2.A CONTRACTOR'S GENERAL LIABILITY AND PROPERTY DAMAGE INSURANCE

1. Furnish a copy of the certificate of insurance to the Department of Transportation as evidence that, with respect to the operations performed on railroad right of way, Contractor's General Liability Insurance providing for limits of liability as follows:

<u>COVERAGE</u>	<u>MINIMUM COMBINED LIMITS OF LIABILITY</u>
Bodily Injury Liability	\$2,000,000 Per Occurrence
Property Damage Liability	\$2,000,000 Aggregate

2. If any part of the work is sublet, similar insurance and evidence thereof in the same amounts as required of the Prime Contractor, must be provided by the subcontractor to cover his operations on railroad right of way. As an alternative, the Prime Contractor may provide for the subcontractor by means of separate and individual policies.

3. Certificates must make reference to the project, milepost and county. Certificate description and project designation to include the following information: Installation of fiber optic communications cable over or under tracks of the Norfolk Southern Railway Company, Wake County near Railroad Milepost identified as Project R-2641 and Federal Project STPNHF-0005(1).

Certificates of Insurance holder are to be the address given below.

Norfolk Southern Corporation
Attn. David Fries, Director – Risk Management
Three Commercial Place
Norfolk, VA 23510

4. All policies and certificates must contain a clause requiring that thirty (30) days written notice be given the Department of Transportation and the Railroad Company prior to cancellation or change. The notices must make reference to the project, milepost and county.

NOTICE TO:

Norfolk Southern Corporation
Attn. David Fries, Director – Risk Management
Three Commercial Place
Norfolk, VA 23510

COPY NOTICE TO:

Department of Transportation
Construction Unit
c/o State Contractual Services Engineer
1543 Mail Service Center
Raleigh, NC 27699-1543

5. Carry all insurance herein specified until the final inspection and acceptance of the project, or that portion of the project within railroad right of way, by the Department of Transportation or, in the case of subcontractors, until the Design-Builder furnishes a letter to the Engineer stating that the subcontractor has completed his subcontracted work within railroad right of way to the satisfaction of the Contractor and the Contractor will accomplish any additional work necessary on railroad right of way with his own forces. It is understood that the amounts specified are minimum amounts and that the Contractor may carry insurance in larger amounts if he so desires. As to "aggregate limits", if the insurer establishes loss reserves equal to or in excess of the aggregate limit specified in any of the required insurance policies, immediately notify the Department of Transportation and cease all operations until the aggregate limit is reinstated. If the insurer establishes loss reserves equal to or in excess of one/half of the aggregate limit, arrange to restore the aggregate limit to at least the minimum amount stated in these requirements. Any insurance policies and certificates taken out and furnished due to these requirements must be approved by the Department of Transportation and the Railroad Company as to form and amount prior to beginning work on railroad right of way.

No extra allowance will be made for the insurance required hereunder.

6. Furnish evidence of insurance as required above for review to the Department of Transportation at the address shown below after which it will be forwarded by the Department of Transportation to the Railroad.

Send to Department:

Department of Transportation
Construction Unit
c/o State Contractual Services Engineer
1543 Mail Service Center
Raleigh, NC 27699-1543

4.3 Delays Caused By Operations of Others

Neither the Department of Transportation nor the Railroad Company assumes any responsibility for any work performed by others in connection with the construction of the project, and the Contractor will have no claim whatsoever against the Department of Transportation, or the Railroad Company for any inconvenience, delay, or additional cost incurred by him on account of such operations by others.

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4.4 Cooperation With Others

Cooperate with others participating in the construction of the project to the end that all work may be carried on to the best advantage.

4.5 Authority of Railroad Engineer

The authorized representative of the Railroad Company hereinafter referred to as the Railroad Engineer, will have the final authority in all matters affecting the safe maintenance of railroad traffic of his company.

4.6 Interference With Railroad Operations

Arrange and conduct work so that there will be no interference with railroad operations, including train, signal, telephone and telegraphic services, or damage to the property of the Railroad Company or to the poles, wire, and other facilities of tenants on the rights of way of the Railroad Company. Wherever work is liable to affect the operations or safety of trains, the method of doing such work shall first be submitted to the Railroad Engineer for approval, but such approval shall not relieve the Contractor from liability.

Should conditions arising from or in connection with the work, require that immediate and unusual provisions be made to protect train operations and property of the Railroad Company, it shall be a part of the required services by the Contractor to make such provisions and if, in the judgement of the Railroad Engineer such provisions is insufficient, the Railroad Engineer or the Department of Transportation, may at the expense of the Contractor, require or provide such provisions as may be deemed necessary.

4.7 Storage of Materials

Materials and equipment shall not be stored where they will interfere with railroad operations, nor on the rights of way of the Railroad Company without first having obtained permission from the Railroad Engineer, and such permission will be with the understanding that the Railroad Company will not be liable or damage to such material and equipment from any cause and that the Railroad Engineer may move or require the Contractor to move, at the Contractor's expense, such material and equipment.

4.8 Flagging Protection or Watchman Service

The Contractor shall give 72 hours advance notice to the Railroad Company in order that flagging service can be arranged and provided. No work shall be undertaken until the flagman is at the job site.

4.9 Completion and Acceptance of Work

Upon completion of the work, remove from within the limits of the railroad right of way all machinery, equipment, surplus materials, or rubbish and leave said rights of way in a neat and

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orderly condition. After the final inspection has been made and work found to be completed in a satisfactory manner acceptable to the Department of Transportation and the Railroad Company, the Department of Transportation will be notified of the Railroad Company's acceptance in writing by the Railroad Company.

5.0 DIRECTIONAL DRILLING**5.1 DESCRIPTION**

Furnish and install conduit(s) and all necessary hardware by using the horizontal directional drilling method in accordance with the plans and specifications. Comply with the 2002 *Standard Specifications for Roads and Structures*.

5.2 MATERIALS**5.2.A General:**

Provide conduit that is suitable for underground use in an ambient temperature range of -30 to 130 degrees F (-35 to 55 degrees C) without degradation of material properties.

Provide conduit that is resistant to benzene, calcium chloride, ethyl alcohol, fuel oil, gasoline, lubricating oil, potassium chloride, sodium chloride, sodium nitrate, and transformer oil, and is protected against degradation due to oxidation and general corrosion.

Provide conduit(s) with an outer diameter to minimum wall thickness ratio that complies with ASTM-D3035, Standard Dimension Ratio (SDR) 13.5.

Provide conduit(s) that meets or exceeds the following:

ASTM-D638	Tensile Strength - 3,000 psi (20 Mpa), minimum
	Elongation - 400 percent, minimum
ASTM-D1238	Melt Index - 0.4 maximum
ASTM-D1505	Density - (0941-0955 g/cc)
ASTM-D1693	Condition B - 20 percent failure, maximum
ASTM-D2444	Impact - NEMA Standards Publication Number TC7
ASTM-D3350	Cell classification - 334420 or 344420

Furnish conduits with a coefficient of friction of 0.09 or less in accordance with Belcore GR-356.

Dependent upon the number of conduits required, furnish conduits in black, orange, blue and white colors. Provide conduits that are factory extruded with the appropriate colors.

Furnish ½-inch (12.7-mm), prelubricated, woven polyester tape, pull line with a minimum rated tensile strength of 2,500 lb (11 kN).

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5.2.B Polyethylene Conduit:

Furnish factory lubricated 1¼-inch (31.75-mm) inside diameter, low friction, coilable, conduit constructed of virgin high-density polyethylene. Provide conduit with a smooth outer wall and ribbed inner wall and ensure the conduit is capable of being coiled on reels in continuous lengths, transported, stored outdoors, and subsequently uncoiled for installation without affecting its properties or performance.

Furnish duct plugs that provide a watertight barrier when installed in an unused conduit or outer-duct conduit. Furnish duct plugs sized in accordance with the conduit furnished. Provide duct plugs that are removable.

Furnish mechanical sealing devices that provide a watertight barrier between the conduit and communications cable. Furnish mechanical sealing devices sized in accordance with the conduit furnished and with appropriately sized holes for the communications cable. Provide mechanical sealing devices that are removable.

5.2.C Outer-duct Conduit:

Furnish factory lubricated 5-inch (125-mm) inside diameter, low friction, coilable, high-density conduit constructed of virgin high-density polyethylene. Provide outer-duct conduit with a smooth outer wall and inner wall and ensure the conduit is capable of being coiled on reels in continuous lengths, transported, stored outdoors, and subsequently uncoiled for installation without affecting its properties or performance.

5.3 CONSTRUCTION METHODS**5.3.A Pre-Approvals and Minimum Depth Requirements:**

Obtain the Engineer's approval prior to beginning drilling operations.

At all "Controlled Access Areas" including freeways and expressways where the proposed conduit will traverse under the roadway including entrance and exit ramps, ensure the conduit(s) maintains a minimum depth of 15 feet (4.6 meters) below grade. Also, maintain a minimum horizontal and/or vertical clearance of 5 feet (1.5 meters) from any man-made structures, including but not limited to, bridges, footings, pipe culverts, box culverts, and slope protection for bridge decks. Maintain a minimum clearance of 5 feet (1.5 meters) below grade when crossing ditch lines.

At all points where the proposed conduit will traverse under city streets, state roads, driveways and/or sidewalks, ensure the conduit maintains a minimum depth of 10 feet (3 meters).

Guarantee the drill rig operator and digital walkover locating system operator are factory-trained to operate the make and model of the equipment provided and has a minimum of one year's experience operating the make and model of drill rig. Submit written documentation of the operators' training and experience at least two weeks prior to commencing directional drilling operations for review by the Engineer.

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Provide a means of collecting and containing drilling fluid/slurry that returns to the surface such as a slurry pit. Provide measures to prevent drilling fluids from entering drainage ditches and storm sewer systems. Prevent drilling fluid/slurry from accumulating on or flowing onto sidewalks, other pedestrian walkways, driveways or streets. Immediately remove any drilling fluids/slurry that is accidentally spilled.

5.3.B Directional Drill Operations:

Provide grounding for the drill rig in accordance with the manufacturer's recommendations.

Place excavated material near the top of the working pit and dispose of as required. Backfill pits or trenches excavated to facilitate drilling operations immediately after the drilling has been completed.

Utilize a drill head suitable for the type of material being drilled and sized no larger than the outer diameter of the conduit to be installed. Direct the drill head as needed to obtain the proper depth and desired destination. Pressure grout with an approved bentonite slurry mixture to fill any voids. Jetting alone or wet boring with water shall not be permitted.

During each drilling operation, locate the drill head every 10 feet (3 meters) along the drill path and prior to transversing any underground utility or structure. Use the digital walkover locating system to track the drill head during the directional drilling operation. Ensure the locating system is capable of determining the pitch, roll, heading, depth and horizontal position of the drill head at any point. Unless otherwise approved, do not deviate from the proposed line and grade by more than two percent.

Once the drill head has reached its final location, remove the head, and install a reamer of appropriate size to simultaneously facilitate back drilling of the drill hole and installation of the conduit.

Once the physical installation of the conduit has started, continue performing the installation without interruption to prevent the conduit from becoming firmly set. Ensure the bentonite slurry mixture is applied as the conduit installation process is occurring.

Upon completion of the conduit installation perform a mandrel test on the conduit system to ensure that no conduit(s) has been damaged. Furnish a non-metallic mandrel having a diameter of approximately 50% of the inside diameter of the conduit in which it is to be pulled through. If damage has occurred, replace the entire length of conduit.

Extend the ends of the conduit or outer-duct such that upon completion of the installation the conduit will extend a minimum of 2 inches (50 mm) above concrete surfaces and/or 4 inches (100 mm) above crushed stone bases.

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5.3.C Drilling Fluids:

Furnish and use lubrication for subsequent removal of material and immediate installation of the pipe. The use of water and other fluids in connection with the directional drilling operation will be permitted only to the extent necessary to lubricate cuttings. Jetting alone or wet boring with water shall not be permitted. Use a drilling fluid/slurry consisting of at least 10 percent high-grade bentonite to consolidate excavated material and seal the walls of the drill hole.

Transport waste drilling fluid/slurry from the site and dispose of such slurry in a method that complies with Local, State and Federal laws and regulations.

5.3.D Splicing of the Conduit:

Do not splice or join sections of conduit(s). Upon approval, a junction box may be installed at locations where splicing or coupling of the conduit is necessary due to problems encountered with the installation.

5.3.E Duct Plugs and Mechanical Sealing Devices:

Following the installation of the conduit(s) where the communications cable is not immediately installed use a duct plug to seal the ends of the conduit. Secure the pull line to the duct plug in such a manner that it will not interfere with the installation of the duct plug and provide a watertight seal.

In conduits containing communications cable seal the conduit with an approved mechanical sealing device. Ensure the installation provides a watertight seal.

5.3.F Plan of Record Drawings:

Upon completion of the drilling operation and conduit installation furnish the Engineer with a plan of record profile drawing and a plan drawing for the drilled conduit showing the horizontal and vertical locations of the installed conduit.

6.0 MULTI-DUCT CONDUIT**6.1 DESCRIPTION**

Furnish and install 4-way multi-duct conduit systems with all necessary hardware in accordance with the plans and specifications. Comply with the 2002 *Standard Specifications for Roads and Structures*.

6.2 MATERIALS

Furnish factory lubricated 1¼-inch (31.75-mm) inside diameter, low friction, coilable, conduit constructed of virgin high-density polyethylene. Provide individual conduits with smooth outer walls and ribbed inner walls and ensure the conduit is capable of being coiled on reels in continuous

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lengths, transported, stored outdoors, and subsequently uncoiled for installation without affecting its properties or performance.

Provide conduit that is suitable for underground use in an ambient temperature range of – 30 to 130 degrees F (-35 to 55 degrees C) without degradation of material properties.

Provide conduit that is resistant to benzene, calcium chloride, ethyl alcohol, fuel oil, gasoline, lubricating oil, potassium chloride, sodium chloride, sodium nitrate, and transformer oil, and is protected against degradation due to oxidation and general corrosion.

Provide conduit(s) with an outer diameter to minimum wall thickness ratio that complies with ASTM-D3035, Standard Dimension Ratio (SDR) 13.5.

Provide conduit(s) that meets or exceeds the following:

ASTM-D638	Tensile Strength - 3,000 psi (20 Mpa), minimum Elongation - 400 percent, minimum
ASTM-D1238	Melt Index - 0.4 maximum
ASTM-D1505	Density - (0941-0955 g/cc)
ASTM-D1693	Condition B - 20 percent failure, maximum
ASTM-D2444	Impact - NEMA Standards Publication Number TC7
ASTM-D3350	Cell classification - 334420 or 344420

Furnish conduits with a coefficient of friction of 0.09 or less in accordance with Belcore GR-356.

Furnish a 4-way conduit system with the following colors: black, orange, blue and white. Provide conduits that are factory extruded with the appropriate colors.

Furnish multi-duct conduit organizers at all points where the multi-duct conduit enters and exits into a junction box or cabinet. Furnish multi-duct conduit organizers that are appropriately sized with regards to the conduits. Furnish multi-duct conduit organizers that provide a watertight barrier between the individual conduits and the outer-duct. Provide multi-duct conduit organizers that are removable.

Furnish duct plugs that provide a watertight barrier when installed in an unused conduit. Furnish duct plugs sized in accordance with the conduit furnished. Provide duct plugs that are removable.

Furnish mechanical sealing devices that provide a watertight barrier between the conduit and communications cable. Furnish mechanical sealing devices sized in accordance with the conduit furnished and with appropriately sized penetration holes for the communications cable. Provide mechanical sealing devices that are removable.

Furnish ½-inch (12.7-mm), prelubricated, woven polyester tape, pull line with a minimum rated tensile strength of 2,500 lb (11 kN) in all conduit(s).

Furnish non-detectable underground marker tape with the wording “WARNING -- Fiber Optic Cable” in all trenches.

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Furnish "green" insulated Number 14 AWG, THWN, stranded, copper wire to serve as a tracer wire in conduits containing fiber optic communications cable.

6.3 CONSTRUCTION METHODS

6.3.1 General

Pull the tracer wire simultaneously with the fiber optic communications cable in a continuous length. When multiple pulls of fiber optic cable is required, only one tracer wire is required. Where tracer wire is spliced, provide waterproof butt splices. Splicing is allowed only in cabinets and junction boxes. Label and connect the tracer wire(s) to the equipment ground bus bar in all cabinets.

In non-used/spare conduits, seal each end of the conduit with a duct plug. Secure each end of the pull line to the duct plug prior to installing the duct plug. Ensure that the placement of the pull line does not interfere with the installation of the duct plug and provides a watertight seal.

In conduits containing communications cable seal the conduit with an approved mechanical sealing device. Ensure the installation provides a watertight seal.

6.3.1.A Trench and Backfill:

Maintain a minimum trench depth of 30 inches (760 mm) below finished.

Remove all rock and debris from backfill material. Remove excess material from the site and compact the excavation.

Finish unpaved areas flush with the surrounding natural ground. Restore damaged grassed areas. Seed and mulch within 7 days after the occurrence of the damage. Tamp backfill material in 6-inch (150-mm) lifts with a mechanical tamp until compact density is at least equal to surrounding density.

Finish paved areas with materials matching the damaged area within 7 days of the occurrence of the damage. Cut neatly and replace only the width of the trench for damages caused by trenching. Place graded stone material to temporarily maintain traffic where repairs cannot be performed immediately. Comply with Section 545 of the 2002 *Standard Specifications for Roads and Structures*.

Backfill the trench at locations along the trench path where non-movable objects, such as rocks and boulders, cannot be avoided causing a deviation in the elevation height of the multi-duct conduit system. The purpose of the backfill is to provide a gradual change in the elevation of the trench, from the bottom elevation to the highest point of the obstruction such that excessive bending and stress will not be transferred to the conduits once the multi-duct conduit system is installed.

After the installation of the conduits and upon completion of the tamping and backfill process, perform a mandrel test on each individual conduit to ensure that no conduit has been damaged.

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Furnish a non-metallic mandrel having a diameter of approximately 50% of the inside diameter of the conduit in which it is to be pulled through. If damage has occurred replace the entire length of conduit.

6.3.1.B Multi-duct Installation in Trench

Install multi-duct conduit system along the route of the trench. Install multi-duct conduit organizers at points where the multi-duct conduit system enters or exits the junction box or cabinet, etc.

Install the non-detectable marker tape approximately 15 inches (380 mm) below the finished grade.

Extend the ends of the multi-duct conduit such that upon completion of the installation the conduits will extend a minimum of 2 inches (50 mm) above concrete surfaces and 4 inches (100 mm) above crushed stone bases.

6.3.1.C Multi-duct Installation in Outer-duct

Simultaneously install the individual colored conduits in the outer-duct conduit. Install the multi-duct conduits using an approved cable pulling lubricant.

Use a dynamometer (clutch device) so as not to exceed the maximum allowable pulling tension. Do not use a motorized vehicle to generate pulling forces.

Keep tension on the conduit(s) and the pulling line at the start of each pull. Do not release the tension if the pulling operation is halted. Restart the pulling operation by gradually increasing the tension until the multi-ducts are in motion. Once the multi-duct system is installed in the outer-duct, install the duct organizers at the point where the multi-duct system enters or exits the junction box or cabinet.

Extend the ends of the multi-duct conduit such that upon completion of the installation, the conduits will extend a minimum of 2 inches (50 mm) above concrete surfaces and 4 inches (100 mm) above crushed stone bases.

After installation of the multi-duct conduits, perform a mandrel test on each individual conduit to ensure that no conduits have been damaged. Furnish a non-metallic mandrel having a diameter of approximately 50% of the inside diameter of the conduit in which it is to be pulled through. If damage has occurred replace the entire length of conduit.

6.3.1.D Splicing of Multi-duct

Splicing or joining of the multi-duct is prohibited. With the Engineer's Approval, install a junction box at all locations where splicing or coupling of the multi-duct would be necessary due to problems encountered with the installation method.

6.3.1.E Plan of Record Drawings

Upon completion of the multi-duct conduit system installation, furnish the Engineer with a plan of record profile drawing and plan drawing showing the horizontal and vertical locations of the installed conduit system.

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7.0 SPLICE CABINET (FIBER OPTICS)**7.1 DESCRIPTION**

Furnish and install splice cabinets at each end of the project and all necessary hardware in accordance with the specifications to house fiber optic splice facilities. Comply with the provisions of Article 1700.

This section of the Project Special Provisions describes a cabinet for splice equipment and does not serve to replace Article 1098-19 of the 2002 *Standard Specifications for Roads and Structures* describing Type 170E cabinets for traffic signal controllers.

7.2 MATERIALS**Base Mount Splice Cabinet**

Furnish Type 170E cabinets in accordance with the specifications. Comply with the provisions of the 2002 *Standard Specifications for Roads and Structures* Article 1098-19 (A) except as described within these Project Special Provisions.

General

Furnish 332 cabinets to house fiber optic interconnect centers for terminating, splicing, and cross-connecting fiber optic cables. The 332 stretch splice cabinet should consist of a cabinet housing and 19-inch EIA mounting cage. The cabinet housing must conform to sections 6.2.2 (Housing Construction), 6.2.3 (Door Latches and Locks), and 6.2.5 (Hinges and Door Catches) of the CALTRANS TSCES. Equip splice cabinet housings with a ventilation system. The cabinet cage must conform to section 6.3 of the CALTRANS TSCES.

Furnish fiber optic interconnect centers in the splice cabinets that comply with the 2002 *Standard Specifications for Roads and Structures*, Article 1098-12. Furnish fiber optic interconnect centers that have the capacity to allow the termination of all fiber optic cables terminating at the interconnect center plus a minimum 50% additional capacity.

Shelf Drawer

A pull out, hinged-top drawer, having sliding tracks, with lockout and quick disconnect feature, such as a Vent-Rak Retractable Writing Shelf, #D-4090-13 or equivalent, shall be provided in the splice cabinet.

The pull-out drawer shall extend a minimum of 14 inches (350 mm). It shall be possible to lift this hinged platform in order to gain access to the interior of the drawer. Minimum interior dimensions of the drawer shall be 1 inch (25 mm) high, 13 inches (330 mm) deep, and 16 inches (400 mm) wide. The drawer shall be capable of supporting a 40 pound (18 kg) device or component when fully extended.

7.3 CONSTRUCTION METHODS

Locate cabinets so as not to obstruct sight distance of vehicles.

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CABINET FOUNDATIONS

Modify Article 1750 of the 2002 *Standard Specifications for Roads and Structures*

Replace the words “signal cabinet” with “cabinet” at all references in the section.

8.0 FIBER-OPTIC SPLICE ENCLOSURES**8.1 DESCRIPTION**

Furnish and install underground fiber-optic splice enclosures, and all necessary hardware where required to join fiber optic cables. Comply with the 2002 *Standard Specifications for Roads and Structures*.

8.2 MATERIALS**8.2.A GENERAL**

Furnish underground splice enclosures where required to join fiber optic cables. Furnish underground splice enclosures that are re-enterable using a mechanical dome-to-base seal with a flash test valve, and that are impervious to the entry of foreign material (water, dust, etc.). Ensure enclosures are manufactured in such a manner to be suitable for buried, junction box, and manhole installation.

Provide enclosures with a minimum of one oversized oval port that will accept two cables and with a minimum of four round ports (for single cables) which will accommodate all cables entering the enclosure. Provide heat shrink cable shields with the enclosure to ensure a weather tight seal where each cable enters the enclosure.

Within enclosures, provide the minimum necessary number of hinged mountable splice trays to store the number of splices required, plus the capacity to house six additional splices. Provide a fiber containment basket for storage of loose buffer tubes that are expressed through the enclosure. Ensure enclosures allow sufficient space to prevent macrobending of the buffer tubes when coiled.

Provide splice trays that hold, protect, and organize optical fibers, and that secure fibers inside the splice tray.

8.3 CONSTRUCTION METHODS**8.3.A GENERAL**

Install splice enclosures with splice trays, basket containment assemblies, racking for slack cable or fibers, and strain relief hardware, and all other necessary hardware. Fusion splice and secure SMFO cable in splice trays inside the splice enclosure. Do not exceed 0.05 dB of attenuation per splice.

Furnish strain relief so that no tensile force is on the SMFO cable when it is held within the aerial splice enclosure.

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8.3.B TERMINATION AND SPLICING WITHIN SPLICE ENCLOSURE

Fusion splice all fibers. For all buffer tubes designated to be expressed through the splice enclosure, neatly coil the excess tubing inside the basket provided with the enclosure. Ensure that all buffer tubes are contained within the splice tray so that no bare fibers are outside the tray. Do not damage the fiber or exceed the minimum-bending radius of the fiber.

Install heat shrink cable shields using methods recommend by the manufacturer of the enclosure. Perform a pressurization flash test on the enclosure in accordance with the manufacturer's recommend procedures at the conclusion of the splicing procedure and prior to the final placement of the enclosure.

Install enclosures with a sufficient amount of slack cable to allow the enclosure to be extended into a splicing vehicle that is located within 10 feet (3 meters) of the junction boxes.

For underground and junction box facility installations, place the enclosure along with required spare cables in the facility in a neat and workmanship like manner. Do not damage cable or violate the minimum bending radius of the cable.

9.0 DELINEATOR MARKERS**9.1 DESCRIPTION**

Furnish and install delineator markers at junction box locations in accordance with these specifications. Comply with the 2002 *Standard Specifications for Roads and Structures*.

10.0 FIBER OPTIC TRANSCEIVERS

Page 10-235, Article 1098-13, Replace entire Article with the following:

10.1 Fiber Optic Video Transceiver

Furnish encoded digital video optical transceiver with control data (VOTR-D) that consists of a pair of electronic units referred to as the video optical transmitter with control data (VOT-D) and video optical receiver with control data (VOR-D), compatible with the existing deployed IFS transceivers in the area. When interconnected by means of a single mode fiber optic (SMFO) cable, the units will communicate real-time National Television Standards Committee (NTSC) compliant video from input to output and support full duplex RS-232 or RS-422 digital status and control signal communications. The VOT-D will be interfaced to an NTSC video signal by means of a BNC connector with 75 ohms impedance. The VOR-D provides NTSC RS-250B compatible electrical signal at the BNC output connector driving a 75 ohm impedance. The NTSC output signal level must be 1 volt peak-to-peak.

The function of the VOTR-D pair is to communicate NTSC video, associated status, and control data from a CCTV camera location to the system field node using one single-mode fiber.

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If required, install variable optical attenuators to accommodate a flexible separation distance between each VOT-D and VOR-D pair. The equipment should not cause rapid aging of the optical receiver, nor allow the optical receiver to reach optical or electrical saturation thereby causing high bit errors.

The VOTR-D with a minimum Mean Time Between Failure (MTBF) of 43,800 hours when operated as a pair.

Provide stand-alone VOR-D units with their own power supply.

Provide “hot swappable” VOR-D units when installed in Rack chassis.

A. Optical/Electrical Parameters

An ST type connector on each of the transmitter and receiver units will provide the optical interface. The optical interface must accommodate a single mode fiber operating at 1310 nm and/or 1550 nm. The VOTR-D should accommodate a minimum link loss budget of 25 dB at 1310 nm and/or 18dB at 1550 nm including a 3 dB safety margin. The optical dynamic range must be equal to or exceed the link loss budget. When a signal complying with NTSC standards and EIA-250C is applied to the transmitter inputs, the output of the receiver will provide an undistorted, NTSC and EIA-250C standard signal output when link loss budget is not exceeded. The optical transmitter should use high reliability laser diodes and optical sensors.

B. Video Communications

When operated within its power, link loss budget, and environmental specifications the VOTR-D pair should comply with EIA-250C, medium haul video transmission standards. Provide VOTR-D units with a 10 MHz (3 dB) minimum video bandwidth. The transmission technique used between the receiver and transmitter must be digital encoding. Differential gain and differential phase should comply with EIA-250C medium haul video requirements. Video linearity should be 3 percent maximum. Output voltage must be one volt peak-to-peak per EIA-170. Signal-to-noise must comply with requirements specified in EIA-250C when measured at the output of the VOR-D with input signals to the VOT-D in compliance with EIA-250C and fiber interconnected to accommodate signal loss within specified link budget. Signal-to-noise (S/N) should be 65 dB minimum at the receiver electrical output with an equal or greater S/N of the input signal to the video optical transmitter.

C. RS-232/RS-422 Communications

The VOTR-D should provide a communications reliability of one error in 10⁹ bits minimum, when operated within link loss budgets, power tolerances, and operating environment as specified. Full duplex communications must be accommodated at data rates of 1200, 2400, 4800, 9600, and 19.2 kbps.

D. Digital Encoding

Video transmission should be by means of minimum 10 bit digitally encoded video transmission for the entire video bandwidth specified.

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E. Electrical Interfaces

Video Electrical Signal:

The transmitter should contain a BNC connector that will accept an NTSC color video signal complying with EIA-250C signal standards. Input impedance must be 75 ohms. The receiver will contain a UG-88 BNC connector and shall provide a 75 ohm impedance. Output signal level must comply with NTSC and associated EIA-250C video standards.

Camera Control Digital Signal:

The VOTR-D should accommodate RS-232 and RS-422 interfaces with dip-switch selectability. Input and output signals must comply with EIA standards. When the dip-switch is in RS-422 mode, the VOT-D will convert the RS-422 format to RS-232 and then to an optical format for transmission to the VOR-D and vice-versa. The VOR-D will provide both, via dip-switch selection, RS-232 and RS-422 signal formats and the selection of this format should be independent of the format selected on the VOT-D. A standard RJ-45, DB-25, DB-15, or DB-9 connector must be provided to accommodate this interface. Any necessary cable adapter and cables necessary to interface with the CCTV field equipment and the video server should be provided.

F. Physical Requirements

Connectors must be located on the transceivers for convenient cable attachments. Strain relief should be included on all cables provided with the transceivers. Signal indicators should be easily viewable when the transceivers are mounted in equipment cabinets and at central. All connectors and indicators must be marked. All replaceable components must be marked, and all markings should conform to the supplied documentation, including schematics and parts lists. The transceivers' external markings will include the product name, model number, part number, serial number, manufacturer's name, and manufacturer's address.

Construction and materials selection for the transceivers should prevent fungus growth and cathodic action.

Standalone, shelf mountable, VOT-D devices are to be provided at field CCTV camera locations. VOT-D devices deployed in field equipment cabinets will be external to the CCTV equipment. Furnish standalone transceivers in an aluminum housing that has been treated to prevent corrosion. The standalone VOT-D devices must be interchangeable between field cabinets. For this reason, the transceivers should conform to standard mounting and interconnection provisions within the field cabinet. The mounting plate for the transceivers should have mounting holes manufactured to tolerances to assure interchangeability of units within field cabinets.

G. Power Requirements

Design the VOTR-D power input circuitry to protect the electronics from damage from a power surge or an under voltage condition without causing damage to electronics. Over and under voltage condition is considered to be a power failure and therefore the VOTR-D does not have to perform to specification during this condition. The VOTR-D must automatically recover from an over or under voltage condition when the prime power has returned to values defined by this specification.

Standalone VOT-D devices will receive the power from a step-down transformer supplied with the unit. The transformer should receive 120 VAC ± 15 percent, 60 Hz ± 10 percent prime power from a

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utility power strip within a field cabinet. Provide a three-prong, power connector with the transformer.

H. Environmental Requirements

The VOTR-D must conform to performance specification when operated in the following environment:

Temperature: -22 degrees F to +158 degrees F (-30 degrees C to 70 degrees C)
Humidity: 0 to 98 percent relative humidity with minimal condensation

No cooling airflow should be required for VOTR-Ds in field cabinets. Units must be shipped with protective covers over all connectors.

I. Compatibility Requirements

Furnish field VOT-D and VOR-D that are from the same manufacturer (International Fiber Systems) as the existing fiber optic video transceivers that are in use at the Triangle Regional Traffic Management Center (TRTMC). Furnish VOR-D units that are compatible and fully interoperable with the video fiber optic communications chassis currently installed at the TRTMC. Coordinate with the Engineer prior to final product procurement to determine the units in use at the TRTMC.

10.2 Fiber Optic Data Transceivers (FOT)

The FOT must provide highly reliable RS-232 data communications by means of a 1310nm SFMO communications link to the DMS field units.

Provide variable optical attenuators to accommodate a flexible separation distance between interconnected controller devices. The equipment should not cause rapid aging of the optical receiver, nor allow the optical receiver to reach optical or electrical saturation thereby causing high bit errors.

Label all connectors in accordance with EIA-606 guidelines. Label all replaceable components to conform to supplied documentation, including schematics and parts lists. The FOT external markings should include the product name, model number, part number, serial number, manufacturer's name and manufacturer's address. Provide an RJ-45 or DB-25 connector to accommodate interfaces to the signal controllers and the communications server. Provide cable adapters and category five cables necessary to interface the DMS unit controllers and the DMS server.

The FOT will receive RS-232 electrical transmission signals from the attached microprocessor controller's communications interface and:

Convert the electrical signals to optical intensity modulated signals

Include anti-streaming logic control over electrical to optical signal transmission.

The anti-streaming logic should detect data transmission from the RS-232 port and inhibit the Clear to Send control signal when the maximum selected transmission time is exceeded.

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Provide FOT units with a Mean Time Between Failure (MTBF) of 43,800 hours when operated as a pair, to a 95 percent confidence level.

A. Optical Parameters

Provide ST type connectors on each of the FOT units for the optical interface. The FOT units will receive electrical RS-232 (or RS-422 or RS-485 as configured) transmission signals from the attached signal controller or communications server and convert these electrical signals to optically modulated signals with an appropriate launch power to support a 17 dB link budget. Similarly, the FOT circuitry will receive an optically modulated signal and convert it into an electrical RS-232 (or RS-422 or RS-485 as configured) signal. The optical repeating of a received signal to a retransmitted signal should require no greater than five (5) microseconds. The received signal must be repeated without any signal distortion that would increase bit error rate of the received signal.

B. Electrical Parameters

The FOT circuitry should transmit and receive electrical digital data up to 56 kbps. The data rate of the FOT link should be automatically adaptable to the RS-232 (or RS-422 or RS-485 as configured) electrical interface of the signal controller, up to the maximum data rate. Typical data rates to be utilized on the communications link are 1200, 2400, 4800, 9600, 19.2 kbps, and 38.4 kbps. Full duplex, asynchronous data transmission must be accommodated by the design. The FOT should require no user adjustments other than dip-switch selection of the RS-232, RS-422 and RS-485 interface selection, and master/slave application selection. The factory setting of these dip-switches should be for RS-232 interface and slave mode of operation.

C. Physical Requirements

Connectors must be located on the transceivers for convenient cable attachments. Provide strain relief on all cables connected to the transceivers. Signal indicators should be easily viewable when the transceivers are mounted in controller cabinets and in the rack cabinets. All connectors and indicators must be labeled. Label all replaceable components to conform with supplied documentation, including schematics and parts lists.

Construction and materials selection for the transceivers should prevent fungus growth and cathodic action.

Stand alone, shelf mountable, FOT devices are to be provided in DMS controller cabinets. FOT devices should be external to the DMS controller. Furnish stand alone transceivers in an aluminum housing that has been treated to prevent corrosion. The stand alone FOT devices must be interchangeable between DMS controller cabinets. For this reason, the transceivers should conform to standard mounting and interconnection provisions within the cabinet.

D. Power Requirements

The FOT power input circuitry should be designed to protect the electronics from damage from a power surge or an under voltage condition without causing damage to electronics. The FOT must automatically recover from an over or under voltage condition when the prime power has returned to values defined by this specification. The FOT protocol should recognize the over/under voltage failures and provide a fault indicator for such failures.

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Stand alone FOT devices will receive the power from a step-down transformer supplied with the unit. The transformer will receive 120 VAC ± 15 percent, 60 Hz ± 10 percent prime power from a utility power strip within a controller cabinet.

The FOT chassis should be capable of receiving 120 VAC ± 15 percent, 60 Hz ± 10 percent prime power and have the means to convert the input power as needed to support the circuitry of the FOT cards. The FOT chassis will include AC-to-DC power conversion, power filtering, and regulation to accommodate internal circuit requirements. Power interconnect to the FOT chassis will be through a power connector or screw terminals on the electronics unit. Open power terminals are not allowed.

E. Environmental Requirements

The FOT should conform to performance specification with no degradation of reliability when operated in the following environment:

Temperature: -22 degrees F to +158 degrees F

Humidity: 0 to 98 percent relative humidity with minimal condensation

No cooling airflow should be required for FOT units in DMS controller cabinets. Units should be shipped with protective covers over all connectors.

F. Compatibility Requirements

The FOT furnished must be from the same manufacturer as the VOT-D unless otherwise approved by the Engineer.

10.3 METHOD OF CONSTRUCTION

Comply with Article 1730-3 of the 2002 *Standard Specifications for Roads and Structures* except as noted below.

A. Fiber Optic Video Transceiver

Install new video optic transmitters with data (VOT-D) into new CCTV field cabinets and equipment cabinets. Integrate with CCTV equipment and fiber optic cable network.

Supply stand-alone video optic receivers with data (VOR-D) units for each CCTV location to Department for installation by others in the TRTMC.

B. Fiber Optic Data Transceiver

Install and integrate stand-alone FOT units into DMS cabinet locations. Supply stand-alone FOT units for each DMS location to Department for installation by others in the TRTMC.

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11.0 CCTV FIELD EQUIPMENT**11.1 DESCRIPTION**

Furnish and install CCTV field equipment described in this Section. Furnish equipment that is compatible, interoperable, and completely interchangeable with existing Pelco camera equipment currently in use by NCDOT in the Triangle or approved equivalent. The unit should be fully compatible with all features of the existing matrix switcher at the TRTMC and the CCTV control software.

11.2 CCTV CAMERA ASSEMBLY

Furnish and install, at the locations shown on the Plans, new CCTV camera assemblies. CCTV camera assembly includes camera, lens, housing, pan and tilt unit, camera controller receiver/driver, camera cabling, and pole mounting adapter.

A. Camera and Lens

Furnish new charged coupled device (CCD) color cameras. The cameras must provide automatic gain control (AGC) for clear images in varying light levels. Meet the following minimum requirements:

Video signal format: NTSC composite color video output, 1 volt peak to peak

Automatic Gain Control (AGC): 0-20 dB, peak-average adjustable

Automatic focus: Automatic with manual override

White balance: Automatic through the lens and manual adjustable from remote controller.

Electronic-Shutter: dip-switch selectable electronic shutter with speed range from 1/60 of a second (off) to 1/30,000th of a second

Overexposure protection: Provide built-in circuitry or a protection device to prevent any damage to the camera when pointed at strong light sources, including the sun

Sensitivity: 1.5 lux at 90% scene reflectance

Signal to noise ratio: Greater than 48-dB

Video output Connection: 1-volt peak to peak, 75 ohms terminated, BNC connector

Power: 24 VAC or less

Furnish each camera with a motorized zoom lens that is a Pelco Spectra III high performance integrated dome system or approved equal with automatic iris control with manual override and neutral density spot filter. Furnish lenses that meet the following optical specifications:

Focal length: 0.16" – 3.45", 22X optical zoom, 12X electronic zoom

Preset positioning: 64 Presets

The lens must be capable of both automatic and remote manual control iris and focus override operation. Equip the lens for remote control of zoom and focus, including automatic movement to any of the preset zoom and focus positions. Provide mechanical or electrical means to protect the motors from overrunning in extreme positions. The operating voltages of the lens must be compatible with the outputs of the camera control.

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B. Camera Housing

Furnish new dome style enclosure for the CCTV assemblies that are Pelco Spectra III high performance integrated dome system or approved equal. Equip each housing with mounting assembly for attachment to the CCTV camera pole. The enclosures shall be equipped with a sunshield and be fabricated from corrosion resistant aluminum and finished in a neutral color of weather resistant enamel. The enclosure shall meet or exceed NEMA 4X ratings. The viewing area of the enclosure shall be tempered glass.

C. Pan and Tilt Unit

Equip each new dome style assembly with a pan and tilt unit. The pan and tilt unit should be integral to the Pelco Spectra III high performance integrated dome system or approved equal. The pan and tilt unit must be rated for outdoor operation, provide dynamic braking for instantaneous stopping, prevent drift, and have minimum backlash. The pan and tilt units should meet or exceed the following specifications:

- Pan: continuous 360 Degrees

- Tilt: up/down 180 degrees minimum

- Input voltage: 24 VAC 50/60Hz

- Motors: Two phase induction type, continuous duty, instantaneous reversing

- Preset Positioning: 64 PTZ presets per camera

D. Control Receiver/Driver

Each new camera unit must contain control receiver/driver that are integral to the CCTV dome assembly. The control receiver/driver should receive serial asynchronous data initiated from a camera control unit, decode the command data, perform error checking, and drive the pan/tilt unit, camera controls, and motorized lens. As a minimum, the control receiver/drivers must provide the following functions:

- Zoom in/out

- Automatic focus with manual override

- Tilt up/down

- Automatic iris with manual override

- Pan right/left

- Minimum 64 preset positions for pan, tilt, and zoom

In addition, each control receiver/driver should accept status information from pan/tilt unit and motorized lens for preset positioning of those components. The control receiver/driver must relay pan, tilt, zoom, and focus positions from the field to remote camera control units. The control receiver/driver will accept "goto" preset commands from the camera control unit, decode the command data, perform error checking, and drive the pan/tilt and motorized zoom lens to the correct preset position. The preset commands from the camera control unit will consist of unique values for the desired pan, tilt, zoom, and focus positions.

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E. CCTV Camera Attachment to Pole

At locations shown in the Plans where new CCTV cameras are to be installed on new CCTV poles, design, fabricate, and furnish an attachment assembly for the CCTV camera unit. Use stainless steel banding approved by the Engineer. Submit shop drawings for review and approval by the Engineer prior to installation.

Furnish CCTV attachment that allows for the removal and replacement of the CCTV enclosure as well as providing a weatherproof, weather tight, seal that does not allow moisture to enter the enclosure.

Furnish CCTV Camera Attachment Assembly that is able to withstand wind loading at the maximum wind speed and gust factor called for in these Project Special Provisions and can support a minimum camera unit dead load of 45 pounds.

F. Surge Suppression

Protect all equipment at the top of the pole by grounded metal oxide varistors connecting each power conductor to ground.

Protect coaxial cable from each camera by a surge protector equal to Vicon V15LP, at each end of the cable.

11.3 CCTV Camera Metal Pole

Furnish hot-dipped galvanized steel poles that are 45 feet (minimum) in height to mount CCTV units and equipment cabinets that meet or exceed the requirements of article 1098-15 and Article 1744 of the 2002 *Standard Specifications for Roads and Structures* unless otherwise noted in the Plans or these Project Special Provisions.

Furnish and install concrete foundations for the poles that are in accordance with the Plans and Specifications. Comply with Article 1742 of the 2002 *Standard Specifications for Roads and Structures*.

Furnish poles and foundations that meet or exceed the functional requirements with the CCTV units and all equipment cabinets attached. Furnish poles and foundations that sustain the dead load of all equipment attached to the pole with a safety factor of 1.5.

11.4 Pole Mounted CCTV Cabinet

Furnish 336 stretch cabinets to house CCTV control and transmission equipment and fiber optic interconnect centers for terminating, splicing, and cross-connecting fiber optic cables. The 336 stretch CCTV cabinet will consist of a cabinet housing, 19-inch EIA mounting cage, and power distribution assembly (PDA #3 as described in the CALTRANS TSCES).

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The cabinet housing must conform to sections 6.2.2 (Housing Construction), 6.2.3 (Door Latches and Locks), 6.2.4 (Housing Ventilation), and 6.2.5 (Hinges and Door Catches) of the CALTRANS TSCES.

The cabinet cage must conform to section 6.3 of the CALTRANS TSCES.

Terminal blocks on the PDA #3 Assembly have internal wiring for the Model 200 switch pack sockets. Do not use terminal blocks on PDA #3 as power terminals for cabinet devices. Do not furnish cabinet with "Input Panels" described in section 6.4.7.1 of the TSCES. Do furnish cabinet with "Service Panels" as described in section 6.4.7.1 of the TSCES and as depicted on drawing TSCES-9 in the TSCES. Use service panel #2.

Furnish terminal blocks for power for cabinet CCTV and communications devices as needed to accommodate the number of devices in the cabinet.

Do not furnish cabinets with C1, C5, or C6 harness, input file, output file, monitor units, model 208 unit, model 430 unit, or switch packs.

Furnish all conduit, shelving, mounting adapters, and other equipment as necessary to route cabling, mount equipment, and terminate conduit in equipment cabinet.

A. Shelf Drawer

Provide a pull out, hinged-top drawer, having sliding tracks, with lockout and quick disconnect feature, such as a Vent-Rak Retractable Writing Shelf, #D-4090-13 or equivalent in the cabinet. The pull-out drawer should extend a minimum of 14 inches. It shall be possible to lift this hinged platform in order to gain access to the interior of the drawer. Provide a minimum interior dimensions of 1 inch high, 13 inches deep, and 16 inches wide. The drawer should be capable of supporting a 40 pound device or component when fully extended.

B. Cabinet Light

Provide each CCTV cabinet with two (2) fluorescent lighting fixtures (one front, one back) mounted horizontally inside the top portion of the cabinet. The fixtures should include a cool white lamp, and operated by a normal power factor UL-listed ballast. Install a door-actuated switch to turn on the applicable cabinet light when the front door or back door is opened. Mount the lights not to interfere with the upper door stay.

C. Surge Protection for System Equipment

Provide each cabinet with devices to protect the CCTV and communications equipment from electrical surges and over voltages as described below.

Main AC Power Input

Furnish each CCTV cabinet with a hybrid type power line surge protection device mounted inside the power distribution assembly. Install the protector between the applied line voltage and earth

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ground. The surge protector must be capable of reducing the effect of lighting transient voltages applied to the AC line. Mount the protector inside the Power Distribution Assembly housing facing the rear of the cabinet. The protector should include the following features and functions:

Maximum AC line voltage: 140 VAC.

Twenty pulses of peak current, each of which rise in 8 microseconds and fall in 20 microseconds to ½ the peak: 20000 Amperes.

Main Line (AC Line first stage terminal).

Main Neutral (AC Neutral input terminal).

Equipment Line Out (AC line second stage output terminal, 19 amps).

Equipment Neutral Out (Neutral terminal to protected equipment).

GND (Earth connection).

The Main AC line in and the Equipment Line out terminals must be separated by a 200 Microhenry (minimum) inductor rated to handle 10 AMP AC Service.

The first stage clamp must be between Main Line and Ground terminals.

The second stage clamp must be between Equipment Line Out and Equipment Neutral.

The protector for the first and second stage clamp will have an MOV or similar solid state device rated at 20 KA and be of a completely solid state design (i.e., no gas discharge tubes allowed).

The Main Neutral and Equipment Neutral Out must be connected together internally and have an MOV similar solid state device or gas discharge tube rated at 20 KA between Main Neutral and Ground terminals.

Peak Clamp Voltage: 350 volts at 20 KA. (Voltage measured between Equipment Line Out and Equipment Neutral Out terminals. Current applied between Main Line and Ground Terminals with Ground and Main Neutral terminals externally tied together).

Voltage should never exceed 350 volts.

The Protector must be epoxy-encapsulated in a flame retardant material.

Continuous service current: 10 Amps at 120 VAC RMS.

The Equipment Line Out will provide power to cabinet CCTV and communications equipment and to the 24V power supply.

D. Ground Bus

All ground buses must be pressure contact and sized to accommodate #4 AWG conductors.

E. RS-232 to RS-485/RS-422 Converter

Furnish active RS-232 to RS-485/RS-422 Converter unit to allow for the direct connection of the CCTV unit RS-422 or RS-485 based control protocol an RS-232 format for local connection to a laptop computer. The active RS-232 to RS-485/RS-422 Converter unit must be bi-directional and support both two wire and four wire RS-422 and RS-485 communications. The converter should support the following features:

Data Transmission Controlled by the RTS Signal

DCE/DTE Selectable

Point to Point, Multidrop and Simplex/Duplex Link Selectable

Four Wire Full Duplex / Two Wire Half Duplex

Monitor Configuration Support

Furnish active RS-232 to RS-485/RS-422 Converter model IC485S manufactured by ATEN technologies or approved equal.

11.5 METHOD OF CONSTRUCTION

Mount CCTV camera units at a height sufficient to adequately see traffic in all direction or as approved by the Engineer. The minimum height should be 12 meters (40 feet) above ground level and the maximum height should be 15 meters (50 feet) above ground level.

Install CCTV assemblies in the general areas as locations shown on the preliminary Plans.

Mount CCTV camera on side of pole nearest intended field of view and avoids occluding the view with the pole.

Electrically bond each camera and pan/tilt/zoom mechanism and its housing to the CCTV camera attachment assembly using a number 6 AWG braided copper conductor.

Integrate CCTV camera unit with fiber optic transmission equipment, equipment cabinet, and equipment cabinet power supply.

A. Electrical and Mechanical Requirements

Ground all equipment as called for in the 2002 *Standard Specifications for Roads and Structures*, these project special provisions, and the Plans.

Install surge protectors on all ungrounded conductors entering the CCTV enclosure. House the protectors in a small, ventilated weatherproof cabinet attached near the CCTV attachment point in a

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manner approved by the Engineer. The air terminal ground wire should not pass through this cabinet.

Install coaxial cable as required to interconnect fiber optic video transceivers with the CCTV units. Insure that all connections are tight and fully secure.

B. CCTV Camera Metal Pole

Obtain approval from the Engineer of final field location of the CCTV metal pole before developing shop drawings and installing the pole. Develop shop drawings for each pole location (each combination of pole height and equipment mix) and submit to Engineer for approval.

Provide soil core sample test results and/or soil classification results performed by a geotechnical laboratory approved by the Engineer.

Install steel pole in accordance with the plans and specifications. Comply with Article 1740 and Article 1742 of the 2002 *Standard Specifications for Roads and Structures*.

C. Pole Mounted CCTV Cabinet

Use stainless steel banding or other method approved by the Engineer to fasten CCTV cabinet to pole.

Install all conduit, condulets, and attachments to equipment cabinets in a manner that preserves the minimum bending radius of the fiber optic cable and creates water proof connections and seals.

D. RS-232 to RS-485/RS-422 Converter

Install RS-232 to RS-485/422 converter with each new CCTV assembly unit installed. Install inline between CCTV PTZ control feed and VOT-D unit data input. Integrate with cabinet power supply via terminal blocks as required.

12.0 TESTING**12.1 GENERAL**

This Section covers the testing requirements of the system components called for under this project including CCTV field components and fiber optic communications network. Testing requirements described in this Section do not supersede any of the testing requirements described in any other section of the specifications.

Perform testing on all major hardware and supplied for use on this project. These include:

New CCTV field units

Equipment cabinets

Fiber optic transceiver equipment

Fiber optic cable and in-line components

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Test results from this Section will demonstrate the system sub-components and overall operational integrity of the integrated system.

12.2 MATERIALS**A. General**

Perform operation and performance testing on each piece of major equipment item prior to installing it on this project.

Create testing procedures and reporting forms to demonstrate device being tested meets or exceeds manufacturer performance criteria as well as any criteria called for in the specifications. All testing procedures and forms must be approved prior to commencement of testing of the device, component, sub-system, or system the procedure covers.

All testing is to be conducted in the presence of the Engineer or his designated representative.

If, during any testing, two items of the same type fail to satisfy one or more of the tests, the Engineer may require the Contractor to replace the entire compliment of equipment in-kind, or with a different make or model of equipment at the Engineer's option at no additional cost to the project.

B. Sample and Material Testing

Materials to be used in this system will be subject to inspections and evaluations by the Engineer or his designated representative. Upon request by the Engineer, provide the following equipment for review, inspection, and evaluation:

- Fiber optic transmission equipment
- Fiber optic cable samples
- Delineator markers
- Tracer wire
- Underground marker tape
- Conduit samples
- Junction box
- CCTV equipment

Provide the Department with a minimum of twenty (20) days to complete review evaluation of all ITS submittals. Receiving an "Approved" or "Approved As Noted" notification does not in any way relieve the Contractor of his responsibility to meet all of the requirements of these Project Special Provisions.

C. CCTV Field Equipment Testing

All CCTV Camera equipment and materials furnished will be subject to monitoring and testing to determine conformance with all applicable requirements and to ensure proper operation of the CCTV camera assemblies. All required test equipment will be supplied by the Contractor.

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Each camera assembly furnished and installed by the Contractor will be tested. Perform the following tests:

- Verification of installation of specified cables and connections between the camera unit (with combined pan, tilt, and zoom unit and control receiver driver) and the local cabinet.

- Local operation of all CCTV equipment, exercising the pan, tilt, zoom, focus, iris opening, and power on/off functions while observing the video picture on a portable monitor.

- Preset test to ensure camera consistently goes to the proper preset position.

Whenever any unit of equipment fails to pass the assembly tests, correct the deficiencies, either by repair or replacement, at no expense to the Department, as required to comply with the testing requirements. Upon notification that the deficiencies have been corrected, the equipment will be re-tested. All camera assembly testing and re-testing will be performed in the presence of the Engineer or his designated representative.

D. Fiber Optic Cable Testing

Pretest cable provided under this contract in accordance with the EIA/TIA Fiber Optic test procedures listed below and as required by Bellcore GR-20-CORE. Supply proof of successful testing, including documentation of the test result.

Perform an on-reel attenuation test on each fiber of each SMFO cable upon receipt at the Contractors storage facility. Perform these tests prior to any cable installation on this project. Except for the access to, and the test preparation of any one end of the SMFO cable to be tested, the Contractor will preserve the cable in its originally shipped condition.

This test should be an end-to-end attenuation test performed with a high resolution Optical Time Domain Reflectometer (OTDR). Use the EIA/TIA-455-61 testing method. The attenuation measurement of any single mode fiber should not exceed 0.35 dB per kilometer at 1310 nm and 0.25 dB per kilometer at 1550 nm. The entire reel of cable will be rejected and no portion of it can be used on this project if any fiber of the cable fails the on-reel cable attenuation test.

Perform OTDR tests for each fiber of each SMFO cable installed. Cable segment testing will be performed as each cable segment (a segment being any continuous run of cable without splices or terminations) is installed and terminated. The cable segment will be rejected for use on this project if any fiber of the SMFO cable segment fails the cable segment attenuation test. Remove and replace cables segments that are rejected. Conduct entire test series again on cable segments that are replaced.

Perform OTDR test on all installed and terminated cable segments from connectorized-end to connectorized-end. During testing, both ends of the segment should be disconnected from the mating connectors of their designated electronic device terminals. SMFO connector losses should not exceed 1.0 dB per mating connector pair. SMFO splice losses should not exceed 0.05 dB per installed fusion splice.

Furnish durable labeled plots and electronic copies of test results for each fiber including engineering calculations demonstrating that OTDR test results meet or exceed the attenuation

WAKE

requirements and that optical properties of the cable have not been impaired. Provide engineering calculations and tests for fiber-optic cable that demonstrates the loss budget where the fiber originates and the point where the fiber meets an electronic device.

Any fiber optic link that exceeds attenuation design (fiber link attenuation plus splices attenuation plus connector loss) by more than 10% will be investigated by the Contractor to determine the cause of excessive attenuation. Corrective action must be taken to provide a circuit compatible with optical transceiver loss budget plus a 20% margin for aging.

13.0 SYSTEM SUPPORT EQUIPMENT**13.1 Materials**

Furnish new, unused system support equipment to the Engineer as specified in these provisions in the quantities shown below:

- One (1) CCTV unit
- One (1) video optical transmitters with data (VOT-D)
- One (1) video optical receivers with data (VOR-D)

RETAINAGE AND PROMPT PAYMENT:

1-01-02

Retainage:

The Department will not deduct and hold any retainage from the Design-Builder on this project.

The 2002 Standard Specifications shall be revised as follows:

Sub-Article 109-4(A), pages 1-69 and 1-70

Delete the second, third, fourth, and fifth paragraphs of this subarticle.

Insert the following:

"The Department will withhold an amount sufficient to cover anticipated liquidated damages, as determined by the Engineer."

Prompt Payment of Monies Due SubContractors, Second Tier SubContractors and Material Suppliers and Release of Retainage

The Design-Builder, subContractor, or second tier Contractor, shall within seven calendar days of receipt of monies, resulting from work performed on the project or services rendered, pay subContractors, second tier subContractors, or material suppliers, as appropriate. This seven-day period begins upon knowledgeable receipt by the contracting firm obligated to make a subsequent periodic or final payment. These prompt payment requirements will be met if each firm mails the payment to the next level firm by evidence of postmark within the seven-day period.

This provision for prompt payment shall be incorporated into each subcontract or second tier subcontract issued for work performed on the project or for services provided.

The Design-Builder may withhold up to 3% retainage if any subcontractor does not obtain a payment and performance bond for their portion of the work. If any retainage is held on subcontractors, all retainage shall be released within seven calendar days of satisfactory completion of all work. For the purpose of release of retainage, satisfactory completion is defined as completion of all physical elements and corresponding documentation as defined in the contract, as well as agreement between the parties as to the final quantities for all work performed in the subcontract. The Department will provide internal controls to expedite the determination and processing of the final quantities for the satisfactorily completed subcontract portions of the project.

Failure of any entity to make prompt payment as defined herein may result in (1) withholding of money due to that entity in the next partial payment until such assurances are made satisfactory to this provision; or (2) removal of an approved Design-Builder from the prequalified bidders list or the removal of other entities from the approved subcontractors list.

SP1G73

DOMESTIC STEEL AND IRON PRODUCTS:

7-1-95

All steel and iron products which are permanently incorporated into this project shall be produced in the United States except minimal amounts of foreign steel and iron products may be used provided the combined project cost of the bid items involved does not exceed one-tenth of one percent (0.1 percent) of the total amount bid for the entire project or \$2,500.00, whichever is greater. This minimal amount of foreign produced steel and iron products permitted for use by this Special Provision is not applicable to fasteners. Domestically produced fasteners are required for this project.

All steel and iron products furnished as "domestic products" shall be melted, cast, formed, shaped, drawn, extruded, forged, fabricated, produced, or otherwise processed and manufactured in the United States. Raw materials including pig iron and processed pelletized and reduced iron ore used in manufacturing "domestic" steel products may be imported; however, all manufacturing processes to produce the products, including coatings, must occur in the United States.

Before each steel or iron product is incorporated into this project or included for partial payment on a monthly estimate, the Design-Builder shall furnish the CEI Firm a notarized certification certifying that the product conforms to the above requirements of this Special Provision. The CEI Firm will forward a copy of each certification to the Materials and Tests Unit.

Each purchase order issued by the Design-Builder or a subcontractor for steel and iron products to be permanently incorporated into this project shall contain in bold print a statement advising the supplier that all manufacturing processes to produce the steel or iron shall have occurred in the United States. The Design-Builder and all affected subcontractors shall maintain a separate file for steel products permanently incorporated into this project so that verification of the Design-Builder's efforts to purchase "domestic" steel and iron products can readily be verified by an authorized representative of the Department or the Federal Highway Administration.

SP1G97

PLANT AND PEST QUARANTINES:

03-18-03

(IMPORTED FIRE ANT, GYPSY MOTH, WITCHWEED, AND OTHER NOXIOUS WEEDS)

Within quarantined area:

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

Originating in a quarantined county:

Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture Have the certificate or limited permit accompany the article when it arrives at the project site.

Contact:

Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-733-6932, or <http://www.ncagr.com/plantind/> to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

Regulated Articles Include:

1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance, of any character, if determined by an inspector to present a hazard of spreading imported fire ant, gypsy moth, witchweed or other noxious weeds.

SP1G130

ASPHALT PAVEMENTS - SUPERPAVE (Design-Build):

01-21-2003.

Revise the 2002 Standard Specifications as follows:

FIELD VERIFICATION AND JOB MIX FORMULA ADJUSTMENTS:

Page 6-7, Article 609-4

Delete the first paragraph under this Article and substitute the following:

Conduct field verification of the mix at each plant within 30 calendar days prior to initial production of each mix design, when required by the Allowable Mix Adjustment Policy and when directed as deemed necessary.

Page 6-8, Article 609-4

Delete the first paragraph on this page and substitute the following:

Retain records of these calibrations and mix verification tests, including Superpave Gyratory Compactor (SGC) printouts, at the QC laboratory. In addition, furnish copies, including SGC printouts, to the Engineer for review and approval within one working day after beginning production of the mix.

Add the following sentence to the last paragraph in this Article:

Any mix produced that is not verified may be assessed a price reduction at the Engineer's discretion in addition to any reduction in pay due to mix and/or density deficiencies.

Quality control minimum sampling and testing schedule:

Page 6-9, Subarticle 609-5(C) 2

At the bottom of this page, delete the sentence directly above the Accumulative Production Increment and substitute the following:

Sample and test the completed mixture from each mix design at the following minimum frequency during mix production:

Page 6-11, Subarticle 609-5(C) 2

At the top of this page, delete Item B., "Reclaimed Asphalt Pavement..." and substitute the following:

B. Reclaimed Asphalt Pavement (RAP) Binder Content and Gradation (AASHTO T 308 Modified or T 164 and AASHTO T 30) (sampled from stockpiles or cold feed system at beginning of production and weekly thereafter). Have RAP approved for use in accordance with Article 1012-1(F). (Split Sample Required)

Page 6-11, Subarticle 609-5(C) 2

Insert the following sampling and testing at the end of this Subarticle

F. Uncompacted Void Content of Fine Aggregate, AASHTO T 304, Method A (natural sand only). Performed at Mix Design and when directed as deemed necessary. (Split Sample Required)

CONTROL CHARTS:

Page 6-12, Subarticle 609-5(C) 3

Delete item 3 in the list below the second full paragraph on this page.

CONTROL LIMITS:

Page 6-12, Subarticle 609-5(C) 4

At the bottom of this page, delete the table and substitute the following:

Control Limits

Mix Control Criteria	Target Source	Warning Limit	Moving Average Limit	Individual Limit
2.36mm Sieve	JMF	±4.0 %	±5.0 %	±8.0 %
0.075mm Sieve	JMF	±1.5 %	±2.0 %	±2.5 %
Binder Content	JMF	±0.3 %	±0.5 %	±0.7 %
VTM @ N _{des}	JMF	±1.0 %	±1.4 %	±1.5 %
VMA @ N _{des}	Min. Spec. Limit	-0.5%	-0.8%	-1.0%
P _{0.075} / P _{be} Ratio	Max. Spec. Limit	0.0	N/A	+0.4%
%G _{mm} @ N _{ini}	Max. Spec. Limit	N/A	N/A	+2.0%

ALLOWABLE RETESTING FOR MIX DEFICIENCIES:

Page 6-14, Subarticle 609-5(C) 7

At the bottom of this page, delete the +/- 2.5 %, VTM criteria for resampling and retesting plant mix deficiencies and substitute +/- 2.0 %.

FIELD COMPACTION QUALITY CONTROL

Page 6-15, Subarticle 609-5(D) 1

Delete the first and second sentences in the fourth paragraph on this page and substitute the following:

Base and intermediate mix types (surface mixes not included) utilized for pavement widening of less than 4.0 feet and all mix types used in tapers, irregular areas and intersections (excluding full width travel lanes of uniform thickness), will not be subject to the sampling and testing frequency specified above provided the pavement is compacted using approved equipment and procedures. However, the Engineer may require occasional density sampling and testing to evaluate the compaction process.

Page 6-16, Subarticle 609-5(D) 1

Delete item number 2 at the top of this page. Item number 3 should be re-numbered as 2 after the specified deletion.

LIMITED PRODUCTION PROCEDURE:

Page 6-17, Subarticle 609-5(D) 5

Delete the first paragraph in this Subarticle and substitute the following:

Proceed on limited production when, for the same mix type, one of the following items occur:

- (1) Two consecutive failing lots, excluding lots representing an individual resurfacing map or portion thereof.
- (2) Three consecutive failing lots, with each lot representing an individual resurfacing map or portion thereof.
- (3) Two consecutive failing nuclear control strips.

Pavement within each construction category (New and Other), as defined in Article 610-13, and pavement placed simultaneously by multiple paving crews will be evaluated independently for limited production purposes.

Delete the first sentence in the last paragraph in this Subarticle and substitute the following:

If the Design-Builder does not operate by the limited production procedures as specified above, the two consecutive failing density lots, three consecutive failing lots with each lot representing an individual resurfacing map or portion thereof, or two consecutive failing nuclear control strips, whichever is applicable, and all mix produced thereafter will be considered unacceptable.

DOCUMENTATION (RECORDS):

Page 6-18, Subarticle 609-5(E)

Delete the third and fourth sentence in the first full paragraph on this page and substitute the following:

Maintain the QC testing forms and records for one calendar year after the forms are completed.

Delete the second full paragraph on this page and substitute the following:

Falsification of test results, documentation of observations, records of inspection, adjustments to the process, discarding of samples and/or test results, or any other deliberate misrepresentation of the facts will result in the revocation of the applicable person's QMS certification. The Engineer will determine acceptability of the mix and/or pavement represented by the falsified results or documentation. Acceptability of the mix will be determined in accordance with Article 105-3. If the mix and/or pavement represented by the falsified results is determined not to be acceptable, remove and replace with mix that complies with the Specifications.

QUALITY ASSURANCE:

Page 6-18, Article 609-6

In Item 5 under Plant Mix Quality Assurance, add “at a frequency equal to or greater than 5% of the QC sample frequency”.

In the first sentence within the paragraph below Plant Mix Quality Assurance, delete the words “of mix”.

In Item 1 under Density Quality Assurance, delete the wording at the end of the sentence “at a frequency equal to or greater than 10% of the frequency required of the Design-Builder”.

Page 6-19, Article 609-6

In Item 4 under Density Quality Assurance, add “at a frequency equal to or greater than 5% of the QC sample frequency”.

LIMITS OF PRECISION:

Page 6-19, Article 609-6

Under the items listed under Mix Property, delete the last three items and substitute the following:

Retest of QC Core Sample	± 1.2% (% Compaction)
Comparison of QA Core Sample	± 2.0% (% Compaction)
QA Verification Core Sample	± 2.0% (% Compaction)
Nuclear Comparison of QC Test	± 2.0% (% Compaction)
QA Nuclear Verification Test	± 2.0% (% Compaction)

ASPHALT CONCRETE PLANT MIX PAVEMENTS – MATERIALS:

Page 6-21, Article 610-2

Delete reference of Anti-strip additive (chemical) to Article 1020-2 and substitute Article 1020-8.

COMPOSITION OF MIXTURES (MIX DESIGN AND JOB MIX FORMULA):

Page 6-21, Subarticle 610-3(A)

At the end of the second paragraph under this Subarticle, add the following sentence:

In addition, submit Superpave gyratory compactor printouts for all specimens compacted at N_{des} and N_{max} during the mix design process.

Insert the following paragraph after the second paragraph under this Subarticle:

For the final surface layer of the specified mix type, use a mix design with an aggregate blend gradation above the maximum density line on the 2.36 mm and larger sieves.

Insert the following at the end of the third paragraph under this Article:

When the percent of binder contributed from RAS or a combination of RAS and RAP exceeds 20 percent of the total binder in the completed mix, the virgin binder PG grade must be one grade below (both high and low temperature grade) the binder grade specified in table 610-2 for the mix type.

Delete the fourth paragraph in this Subarticle and substitute the following:

For Type S 12.5D mixes, the maximum percentage of reclaimed asphalt material is limited to 15% and must be produced using virgin asphalt binder grade PG 76-22. For all other recycled mix types, when the percentage of RAP is 15 percent or less of the total mixture, the virgin binder PG grade must be as specified in Table 610-2 for the specified mix type. When the percentage of RAP is greater than 15 but not more than 25 percent of the total mixture, the virgin binder PG grade must be one grade below (both high and low temperature grade) the specified grade for the mix type. When the percentage of RAP is greater than 25 percent of the total mixture, the Engineer will establish and approve the asphalt binder grade.

Page 6-22, Subarticle 610-3(A)

Insert the following sentence at the end of the Item 4:

If natural sand is utilized in the proposed mix design, determine and report the Uncompacted Void Content of the natural sand in accordance with AASHTO T-304, Method A.

Page 6-23, Subarticle 610-3(A)

Under the quantities of mix components insert the following sentence:

When requested by the Engineer, submit to the Department's Materials and Tests Unit, in Raleigh, six (6) Superpave Gyratory Compactor specimens compacted to a height of 75 mm and to a void content (VTM) of 7.0% +/- 0.5% for performance rut testing with the Asphalt Pavement Analyzer.

JOB MIX FORMULA:

Page 6-24, Subarticle 610-3(C)

Delete Table 610-1 and associated notes. Substitute the following:

**TABLE 610-1
SUPERPAVE AGGREGATE GRADATION DESIGN CRITERIA**

Standard	Percent Passing Criteria (Control Points)											
Sieves	Mix Type (Nominal Maximum Aggregate Size)											
	4.75 mm (a)		9.5 mm (c)		12.5 mm (c)		19.0 mm		25.0 mm		37.5 mm	
(mm)	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
50.0												100.0
37.5										100.0	90.0	100.0
25.0								100.0	90.0	100.0		90.0
19.0						100.0	90.0	100.0		90.0		
12.5				100.0	90.0	100.0		90.0				
9.5		100.0	90.0	100.0		90.0						
4.75	90.0	100.0		90.0								
2.36	65.0	90.0	32.0(b)	67.0(b)	28.0	58.0	23.0	49.0	19.0	45.0	15.0	41.0
1.18												
0.600												
0.300												
0.150												
0.075	4.0	8.0	4.0	8.0	4.0	8.0	3.0	8.0	3.0	7.0	3.0	6.0

- (a) For Type S 4.75A, a minimum of 50% of the aggregate components shall be manufactured material from the crushing of stone.
- (b) For Type SF 9.5A, the percent passing the 2.36mm sieve shall be a minimum of 60% and a maximum of 70%.
- (c) For the final surface layer of the specified mix type, use a mix design with an aggregate blend gradation above the maximum density line on the 2.36 mm and larger sieves.

Page 6-25, Subarticle 610-3(C),

Delete Table 610-2 and associated notes. Substitute the following:

**TABLE 610-2
SUPERPAVE MIX DESIGN CRITERIA**

Mix Type (f)	Design ESALs millions (a)	Binder PG Grade (b)	Compaction Levels			Volumetric Properties (c)			
			No. Gyration @			VMA % Min.	VTM %	VFA Min. - Max.	% Gmm @ N _{ini}
			N _{ini}	N _{des}	N _{max}				
S-4.75A	<0.3	64 -22	6	50	75	20.0	7.0-15.0	-----	-----
SF-9.5A	<0.3	64 -22	6	50	75	16.0	3.0 - 5.0	70 - 80	≤ 91.5

S-9.5A	< 0.3	64 -22	6	50	75	15.0	3.0 - 5.0	70 - 80	≤ 91.5
S-9.5B	0.3 - 3	64 -22	7	75	115	15.0	3.0 - 5.0	65 - 80	≤ 90.5
S-9.5C	3 - 30	70 -22	8	100	160	15.0	3.0 - 5.0	65 - 76	≤ 90.0
S-12.5C	3 - 30	70 -22	8	100	160	14.0	3.0 - 5.0	65 - 75	≤ 90.0
S-12.5D	> 30	76 -22	9	125	205	14.0	3.0 - 5.0	65 - 75	≤ 90.0
I-19.0B	< 3	64 -22	7	75	115	13.0	3.0 - 5.0	65 - 78	≤ 90.5
I-19.0C	3 - 30	64 -22	8	100	160	13.0	3.0 - 5.0	65 - 75	≤ 90.0
I-19.0D	> 30	70 -22	9	125	205	13.0	3.0 - 5.0	65 - 75	≤ 90.0
B-25.0B	< 3	64 -22	7	75	115	12.0	3.0 - 5.0	65 - 78	≤ 90.5
B-25.0C	> 3	64 -22	8	100	160	12.0	3.0 - 5.0	65 - 75	≤ 90.0
B-37.5C	> 3	64 -22	8	100	160	11.0	3.0 - 5.0	63 - 75	≤ 90.0
All Mix Types	Design Parameter					Design Criteria			
	1. %G _{mm} @ N _{max}					≤ 98.0% (d)			
	2. Dust to Binder Ratio (P _{0.075} / P _{be})					0.6 - 1.4			
	3. Retained Tensile Strength (TSR) (AASHTO T 283 Modified)					85 % Min. (e)			

- Notes: (a) Based on 20 year design traffic.
(b) When Recycled Mixes are used, select the binder grade to be added in accordance with Subarticle 610-3(A).
(c) Volumetric Properties based on specimens compacted to N_{des} as modified by the Department.
(d) Based on specimens compacted to N_{max} at selected optimum asphalt content.
(e) AASHTO T 283 Modified (No Freeze-Thaw cycle required). TSR for Type S 4.75A, Type B 25.0 and Type B 37.5 mixes is 80% minimum.
(f) Mix Design Criteria for Types S 4.75A and SF 9.5A may be modified subject to the approval of the Engineer

WEATHER, TEMPERATURE, AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES:

Page 6-26, Article 610-4, Table 610-3

In the first column, third row; delete reference to the ACSC Type S 12.5B mix.

Add the following minimum placing temperatures for mix types S 4.75A and SF 9.5A.

Asphalt Concrete Mix Type	Minimum Air Temperature	Minimum Road Surface Temperature
ACSC, Type S 4.75A, SF 9.5A	40°F (5°C)	50°F (10°C)

SPREADING AND FINISHING:

Page 6-32, Article 610-8

Insert the following after the second sentence within the sixth paragraph in this Article,

Take necessary precautions during production, loading of trucks, transportation, truck exchanges with paver, folding of the paver hopper wings, and conveying material in front of the screed to prevent segregation of the asphalt mixtures.

Page 6-33, Article 610-8

At the end of the third full paragraph on this page, add the following sentence:

Waiver of the use of automatic screed controls does not relieve the Design-Builder of achieving plan grades and cross-slopes.

DENSITY REQUIREMENTS:

Page 6-34, Article 610-10,

Delete Table 610-4 and substitute the following table and associated notes:

Table 610-4
MINIMUM DENSITY REQUIREMENTS

MIX TYPE SUPERPAVE MIXES	MINIMUM % of G_{mm} (AASHTO T 209)
S 4.75A	85.0 ^(a,b)
SF 9.5A	90.0 ^(a)
All Other Mix Types Listed in Table 610-2	92.0

- (a) All S 4.75A and SF 9.5A pavements will be accepted for density in accordance with Article 105-3.
- (b) Compaction to the above specified density will be required when the S 4.75 A mix is applied at a rate of 100 lbs/sy (55 kg/m²) or greater.

Page 6-34, Article 610-10

Delete the second paragraph in this Article and substitute the following:

A specified density will not be required for base and intermediate mix types (surface mixes not included) utilized for pavement widening of less than 4.0 feet (1.2 meters) and all mix types used

in tapers, irregular areas and intersections (excluding full width travel lanes of uniform thickness) provided the pavement is compacted using approved equipment and procedures. However, the Engineer may require occasional density sampling and testing to evaluate the compaction process.

SURFACE REQUIREMENTS AND ACCEPTANCE

Page 6-35, Article 610-12

Delete the first paragraph in this Article and substitute the following:

Construct pavements using quality paving practices as detailed herein. Construct the pavement surface smooth and true to the plan grade and cross slope. Immediately correct any defective areas with satisfactory material compacted to conform with the surrounding area. Pavement imperfections resulting from unsatisfactory workmanship such as segregation, improper longitudinal joint placement or alignment, non-uniform edge alignment and excessive pavement repairs will be considered unsatisfactory and if allowed to remain in place will be accepted in accordance with Article 105-3.

When directed due to unsatisfactory laydown or workmanship, operate under the limited production procedures. Limited production for unsatisfactory laydown is defined as being restricted to the production, placement, and compaction of a sufficient quantity of mix necessary to construct only 500 feet (150 meter) of pavement at the laydown width.

Remain on limited production until such time as satisfactory laydown results are obtained or until three consecutive 500 foot (150 meter) sections have been attempted without achieving satisfactory laydown results. If the Design-Builder fails to achieve satisfactory laydown results after three consecutive 500 foot (150 meter) sections have been attempted, cease production of that mix type until such time as the cause of the unsatisfactory laydown results can be determined. As an exception, the Engineer may grant approval to produce a different mix design of the same mix type if the cause is related to mix problem(s) rather than laydown procedures.

Mix placed under the limited production procedures for unsatisfactory laydown or workmanship will be evaluated for acceptance in accordance with Article 105-3.

DENSITY ACCEPTANCE

Page 6-36, Article 610-13

Delete the second paragraph on this page and substitute the following:

The pavement will be accepted for density on a lot by lot basis. A lot will consist of one day's production of a given job mix formula on a contract. As an exception, separate lots will be established when the one of the following occurs:

- (1) Portions of pavement placed in both “New” and “Other” construction categories as defined below. A lot will be established for the portion of the pavement in the “New” construction category and a separate lot for the portion of pavement in the “Other” construction category.
- (2) Pavement placed on multiple resurfacing maps, unless otherwise approved prior to paving. A lot will be established for each individual resurfacing map or portion thereof.
- (3) Pavement placed simultaneously by multiple paving crews. A lot will be established for the pavement placed by each paving crew.

The Engineer will determine the final category and quantity of each lot for acceptance purposes.

Page 6-36, Article 610-13

Delete the first sentence in the third paragraph on this page and insert the following:

The “New” construction category will be defined as pavements of uniform thickness, exclusive of irregular areas, meeting all three of the following criteria:

Page 6-36, Article 610-13

Delete the second sentence in the last paragraph on this page and substitute the following:

If determined to be reasonably acceptable, the mix will be paid at an adjusted contract price in accordance with Article 105-3.

OPEN-GRADED ASPHALT FRICTION COURSE, CONSTRUCTION REQUIREMENTS:

Page 6-43, Article 650-5

Add the following paragraph after the first paragraph under this Article:

Do not place open-graded asphalt friction course between October 31 and April 1 of the next year, unless otherwise approved. Place friction course, Type FC-1 mixes, only when the road surface temperature is 50°F (10°C) or higher and the air temperature is 50°F (10°C) or higher. The minimum air temperature for Type FC-1 Modified and FC-2 Modified mixes will be 60°F (15°C).

AGGREGATES FOR ASPHALT PLANT MIXES:

Page 10-34, Subarticle 1012-1(B) 4

Delete this Subarticle and substitute the following:

(4) Flat and Elongated Pieces:

Use coarse aggregate meeting the requirements of Table 1012-1 for flat and elongated pieces when tested in accordance with ASTM D 4791 (Section 8.4) on the No. 4 (4.75 mm) sieve and larger with a 5:1 aspect ratio (maximum to minimum) for all pavement types, except there is no requirement for Types S 4.75A, SF 9.5A, S 9.5A and S 9.5B.

Page 10-35, Table 1012-1

Delete Table 1012-1 and substitute the following:

Table 1012-1
AGGREGATE CONSENSUS PROPERTIES ^(a)

Mix Type	Course Aggregate Angularity^(b) ASTM D 5821	Fine Aggregate Angularity % Minimum AASHTO T 304 Method A	Sand Equivalent % Minimum AASHTO T 176	Flat & Elongated 5 : 1 Ratio % Maximum ASTM D 4791 Section 8.4
S 4.75 A	--	40	40	--
SF 9.5 A S 9.5 A, B I 19.0 B B 25.0 B	75 / -	40	40	10 ^(c)
S 9.5 C S 12.5 C I 19.0 C B 25.0 C B 37.5 C	95 / 90	45	45	10
S 12.5 D I 19.0 D	100 / 100	45	50	10
OGAFC	100 / 100	N/A	N/A	10

- (a) Requirements apply to the course aggregate blend and/or fine aggregate blend
- (b) 95/90 denotes that 95% of the course aggregate (+No.4 or + 4.75mm sieve) has one fractured face and 90% has two or more fractured faces.
- (c) Does not apply to Mix Types SF 9.5 A, S 9.5 A or S 9.5 B

Page 10-36, Subarticle 1012-1(C)1

Insert the following after the fourth paragraph on this page:

When natural sand is utilized in “C” or “D” level asphalt mixes, do not exceed the maximum natural sand percentage in the mix design and/or production aggregate blend detailed in Table 1012-1A.

Table 1012-1A

Uncompacted Void Content of Fine Aggregate AASHTO T 304 Method A	Maximum Percent Natural Sand Included in Mix Design and/or Production*
Less than 42.0	10
Equal to 42.0 to 44.9	15
Equal to 45.0 and greater	20

*Maximum percent natural sand may be exceeded with approval from Pavement Construction Engineer upon satisfactory evaluation of pavement performance testing

FINE AGGREGATE ANGULARITY

Page 10-36, Subarticle 1012-1(C) 6

Delete reference to AASHTO TP 33 Method A and substitute AASHTO T 304, Method A.

Page 10-37, Subarticle 1012-1(H)

Delete this Subarticle. It is a duplicate of Subarticle 1012-1(F) located on Page 10-36.

ASPHALT BINDER:

Page 10-46, Article 1020-2

Delete the first paragraph under this Article and substitute the following:

Use Performance Graded Asphalt Binder meeting the requirements of AASHTO M 320. See Article 610-3 for the specified grades. Submit a Quality Control Plan for asphalt binder production in conformance with the requirements of AASHTO R 26 to the Materials and Tests Unit.

SP6R01

COAL FLY ASH IN EMBANKMENTS:

4-16-02

DESCRIPTION:

This specification allows the Design-Builder an option, with the approval of the Engineer, to use coal fly ash (coal combustion by-products) in embankments as a substitute for conventional borrow material.

When fly ash is used as a substitute for earth borrow material:

- Request written approval from the Engineer at least forty days in advance of the intent to use fly ash.
- Provide the specific locations and construction details of the placement as stated in Section .1703 of the Solid Waste Management Law.
- Submit material properties and laboratory analysis of ash typical of the source to the Department prior to use for consideration of approval. Include in the test data characteristics of the ash leachate as determined by the EPA Toxicity Characteristic Leaching Procedure (Method 1311).
- Provide the material from a supplier including all transportation and all necessary permits for transportation and storage before placement.
- Coordinate delivery of volumes, trucking requirements and ash moisture content.

The Engineer and the Resource Conservation Engineer in the Design Services Unit will coordinate the requirements of Section .1700 of 15A NCAC 13B Solid Waste Management Rules and notify the Design-Builder that all the necessary requirements have been met before the placement of structural fill using coal combustion by-products is allowed.

MATERIAL:

Supply coal fly ash from a Department approved source. A list is maintained by the Resource Conservation Engineer [(919) 250-4128].

The following fly ash is unacceptable:

- Frozen material.
- Ash from boilers fired with both coal and petroleum coke.

Deliver fly ash in covered vehicles.

Prevent dusting of fly ash by conditioning with water. Excessively wet or dry and uncovered material arriving at the site will be rejected.

CONSTRUCTION METHODS:

Place coal fly ash in the core of the embankment section with a minimum of 4 feet (1.2 meters) of earth cover to the outside limits of the embankments or subgrade and a minimum of 4 feet (1.2 meters) above the seasonal high ground-water table. Comply with Rule 15A NCAC 13-B Section 1704 Solid Waste Management Law.

Construct embankments by placing fly ash in level uniform lifts with a maximum lift of 10 inches (250 mm) but not greater than can be compacted to a minimum density of 95 percent as determined by test methods in AASHTO T-99, Determination of Maximum Density and Optimum Moisture Content, Method A or C depending upon particle size of the product. Provide a moisture content at the time of compaction of within 4 percent of optimum but not greater than 1 percent above optimum as determined by AASHTO T-99, Method A or C.

SP2R70

**TYING PROPOSED CONCRETE PAVEMENT TO
EXISTING CONCRETE PAVEMENT:**

7-1-95

Tie proposed concrete pavement on this project to existing concrete pavement in accordance with the detail shown in the plans and the following provision:

1. Drill holes in the existing concrete pavement 1/8" (3.2 mm) greater than the diameter of the dowel bar. After drilling, blow the hole out with air and allow to dry.
2. Next, place the cement grout or epoxy resin in the back of the dowel hole. The placement of grout can be achieved by using a flexible tube with a long nose that places the material in the back of the dowel hole; the placement of epoxy-type materials can be achieved by using a cartridge with a long nozzle that dispenses the material to the rear of the dowel hole.
3. Insert the dowel into the hole with a slight twisting motion so that the material in the back of the hole is forced up and around the dowel bar to ensure a uniform coating of the anchoring material over the dowel bar.
4. Place a thin nylon or plastic grout retention disk, (1/16" [1.6 mm] minimum thickness) manufactured to slip tightly over the dowel over the dowel and against the slab face to prevent the anchoring material from flowing out of the hole, and to create an effective face at the entrance of the dowel hole.

No direct payment will be made for this work as such work will be included in the contract lump sum price for the project.

SP7R05

BEGINNING AND ENDING OF CONCRETE PAVEMENT:

7-1-95

Install dowels in the concrete pavement at its beginning and ending to allow for future tie-in of concrete pavement in accordance with the detail in the plans and as directed by the Engineer.

No direct payment will be made for this work as such work will be included in contract lump sum price for the project.

SP7R15

STREET SIGNS AND MARKERS AND ROUTE MARKERS:

7-1-95

The Design-Builder shall move any existing street signs and markers and route markers out of the construction limits of the project and install the street signs and markers and route markers so that they will be visible to the traveling public if there is sufficient right of way for these signs and markers outside of the construction limits.

Near the completion of the project and when so directed by the Engineer, the Design-Builder shall move the signs and markers and install them in their proper location in regard to the finished pavement of the project.

Any signs or markers which cannot be relocated due to lack of right of way, or any signs and markers which will no longer be applicable after the construction of the project, shall be stockpiled at locations directed by the Engineer for removal by others.

The Design-Builder will be responsible to the owners for any damage to any street signs and markers or route markers during the above described operations.

D9G01

FLOWABLE FILL:

Description:

This specification shall give the Design-Builder an option to use (a controlled low-strength material) flowable fill as a substitute for conventional fill material.

Flowable fill may be substituted for backfilling roadway trenches containing water, sanitary sewer, storm sewer and utility pipes and conduits. The Design-Builder has an option of filling culvert pipes and leaving them in place instead of removing them. The Design-Builder shall provide a method to plug the ends of the existing pipe in order to contain the flowable fill in the drainage pipes to the satisfaction of the CEI Firm. When approved by the CEI Firm, flowable fill may be used for backfilling retaining walls, bridge abutments, and other applications where conventional fill material has traditionally been used. All work shall be in accordance with Section 340 of the Standard Specifications.

Placing:

In roadway trenches, the material shall be brought level with the bottom of the pavement and then paved over. Between filling and paving operations, steel plates may be placed over the trench to accommodate traffic.

GUARDRAIL POSTS AND OFFSET BLOCKS:

1-21-03

Revise the 2002 Standard Specifications as follows:

Page 10-69, Subarticle 1046-3

Delete this sub-article in its entirety and replace with the following:

1046-3 POSTS AND OFFSET BLOCKS.

(A) General:

The Design-Builder may, at his option, furnish either of the following types of steel guardrail posts. Only one type of post will be permitted at any one continuous installation. Timber posts may be used only when required by the plans.

1. Steel W6 x 8.5 or W6 x 9.0 posts.
2. Steel 4.5" x 6.0" "C" shape posts. (C150 x 12.2 kg/m)
3. Timber 6" x 8" (152 mm x 203 mm) posts.
4. Timber 8" x 8" (203 mm x 203 mm) posts.

(B) Structural Steel Posts:

Fabricate steel posts for guardrail of the size and weight shown on the plans from structural steel complying with the requirements of Section 1072, except that the metal from which C shape posts are fabricated must meet the requirements of ASTM A570 for any grade of steel other than mechanical requirements which must meet the requirements of ASTM A36. Punch or drill the holes for connecting bolts. Burning will not be permitted. After fabrication the posts must be galvanized in accordance with Section 1076.

Use structural steel posts, throughout the project, unless otherwise directed or detailed in the plans.

(C) Treated Timber Posts:

All timber guardrail posts must be of treated southern pine meeting the requirements of Article 1082-2 and 1082-3.

Bore bolt holes to a driving fit for the bolts. A minus tolerance of 1 percent will be allowed in the length of the post. Perform all framing and boring before the posts receive preservative treatment.

Only use treated timber posts if specifically directed or detailed in the plans.

(D) Offset Blocks:

Use recycled plastic or recycled composite offset blocks with steel beam guardrail. The use of steel offset blocks with steel beam guardrail is not allowed. Use treated timber offset blocks only if required by specification, directed or detailed in the plans.

Provide all offset blocks in the shape and dimensions as detailed for wood offset blocks (sheet 4 of 7, Std. 862.02) in the standard drawings and/or plans.

Recycled plastic or composite offset blocks must be made from a minimum of 50% recycled plastic or composite and meet the following minimum requirements:

- Specific Gravity:..... 0.950
- Compressive Strength in Lateral Direction:..... 1600 psi (11 MPa)
- Maximum Water Absorption: 10% by weight
- Maximum Termite and Ant Infestation:..... 10%
- Testing:..... Must pass NCHRP Report 350, Test Level 3 by CRASH TESTING
- Approval:..... Must be approved for use by the FHWA

SP8R57

BORROW EXCAVATION:

Page 2-20, Article 230-6

After the first paragraph, add the following paragraph:

“No direct payment will be made for the work of Evaluation of Potential Wetlands and Endangered Species as outlined above. Payment at the contract lump sum price for Construction of Design-Build project will be considered full compensation for this work.”

SP2R37

AGGREGATE PRODUCTION:

11-20-01

Provide aggregate from a producer who utilizes the new Aggregate Quality Control/Quality Assurance Program which is in effect at the time of shipment.

No price adjustment is allowed to Design-Builders or producers who utilize the new program. Participation in the new program does not relieve the producer of the responsibility of complying with all requirements of the Standard Specifications. Copies of this procedure are available upon request from the Materials and Test Unit.

SP10R05

CONCRETE BRICK AND BLOCK PRODUCTION:

11-20-01

Provide concrete brick and block from a producer who utilizes the new Solid Concrete Masonry Brick/Unit Quality Control/Quality Assurance Program that is in effect on the date that material is received on the project.

No price adjustment is allowed to contractors or producers who utilize the new program. Participation in the new program does not relieve the producer of the responsibility of complying with all requirements of the Standard Specifications. Copies of this procedure are available upon request from the Materials and Test Unit.

SP10R10

FINE AGGREGATE:

11-19-02

Revise the 2002 Standard Specifications as follows:

Page 10-17, Table 1005-2

Make the following change to the table:

For Standard Size 2MS the following gradation change applies.

The minimum percent shown for material passing the No. 8 (2.36mm) sieve has been changed from 84 to **80**.

SP10R15

SHOULDER AND FILL SLOPE MATERIAL:

6-19-01

General:

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the Standard Specifications except as follows:

Construct the top 6 inches (150 mm) of shoulder and fill slopes with soils capable of supporting vegetation. Environmentally Sensitive Areas should be capped with this material before other areas.

Provide soil consisting of loose, friable, sandy material free of subsoil admixtures, refuse, stumps, rocks, roots, root mats, or other unsatisfactory material.

Provide soil with a P.I. greater than 6 and less than 25 and with a pH ranging from 5.5 to 6.8. Remove stones and other foreign material 2 inches (50 mm) or larger in diameter. All soil is subject to test and acceptance or rejection by the Engineer.

Obtain material from within the project limits or approved borrow source.

DRUMS:

7/16/02

Revise the 2002 Standard Specifications as follows:

Page 10-195, Subarticle 1089-5(C)

Delete the first (1st) sentence of the first (1st) paragraph and insert the following:

“Provide a minimum of three orange and two white alternating horizontal circumferential stripes covering the entire outside with each drum.”

SP11R05

PORTABLE CONCRETE BARRIER:

11-19-02

Portable Concrete Barrier used on this project must meet one of the following:

- NC Approved NCHRP 350 Portable Concrete Barrier (design can be found at <http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/TC/> or can be obtained by calling the Traffic Control Section at (919) 250-4159)
- Other NCHRP 350 Portable Concrete Barrier as approved by the Engineer and the Traffic Control Section
- NC Approved NCHRP 230 Portable Concrete Barrier in Roadway Standard Drawing 1170.01 manufactured before October 1, 2002

SP11R10

PAVEMENT MARKING GENERAL REQUIREMENTS:

7/16/02

Revise the 2002 Standard Specifications as follows:

Page 12-10, Subarticle 1205-3(J)

Delete the first (1st) sentence of the first (1st) paragraph and insert the following:

“Have at least one member of every pavement marking crew working on a project certified through the NCDOT Pavement Marking Technician Certification Process. For more information contact the Traffic Control, Marking and Delineation Section of the North Carolina Department of Transportation at 919-250-4151 or <http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/TC/>”

SP12R01

January 1, 2002

STANDARD SPECIAL PROVISION

AVAILABILITY OF FUNDS - TERMINATION OF CONTRACTS

In accordance with G.S. 143-28.1 (6), Subsection (5) of G.S. 143-28.1 is hereby incorporated verbatim in this contract. G.S. 143-28.1(5) is as follows:

“(5). Amounts Obligated - Payments subject to the Availability of Funds - Termination of Contracts. Highway maintenance and construction appropriations may be obligated in the amount of allotments made to the Department of Transportation by the Office of State Budget and Management for the estimated payments for maintenance and construction contract work to be performed in the appropriation fiscal year. The allotments shall be multi-year allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in subdivision (2) above. Payment for highway maintenance and construction work performed pursuant to contract in any fiscal year other than the current fiscal year will be subject to appropriations by the General Assembly. Highway maintenance and construction contracts shall contain a schedule of estimated completion progress and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any highway maintenance or construction contract and any highway maintenance or construction contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of schedule work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications”.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Article 108-13, Item 5, of the North Carolina Department of Transportation Standard Specifications for Roads and Structures, dated January 1, 2002.

STANDARD SPECIAL PROVISIONS
(ENGLISH AND METRIC)
NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY

Seed shall be sampled and tested by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory. When said samples are collected, the vendor shall supply an independent laboratory report for each lot to be tested. Results from seed so sampled shall be final. Seed not meeting the specifications shall be rejected by the Department of Transportation and shall not be delivered to North Carolina Department of Transportation warehouses. If seed has been delivered it shall be available for pickup and replacement at the supplier's expense.

Any relabeling required by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory, that would cause the label to reflect as otherwise specified herein shall be rejected by the North Carolina Department of Transportation.

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, Sicklepod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

Tolerances established by the Association of Official Seed Analysts will generally be recognized. However, for the purpose of figuring pure live seed, the found pure seed and found germination percentages as reported by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory will be used. Allowances, as established by the NCDOT, will be recognized for minimum pure live seed as listed on the following pages.

The specifications for restricted noxious weed seed refers to the number per pound as follows:

Restricted Noxious Weed	Limitations per Lb. Of Seed	Restricted Noxious Weed	Limitations per Lb. of Seed
Blessed Thistle	4 seeds	Bermudagrass	27 seeds
Cocklebur	4 seeds	Cornflower (Ragged Robin)	27 seeds
Spurred Anoda	4 seeds	Texas Panicum	27 seeds
Velvetleaf	4 seeds	Bracted Plantain	54 seeds
Morning-glory	8 seeds	Buckhorn Plantain	54 seeds
Corn Cockle	10 seeds	Broadleaf Dock	54 seeds
Wild Radish	12 seeds	Curly Dock	54 seeds
Purple Nutsedge	27 seeds	Dodder	54 seeds
Yellow Nutsedge	27 seeds	Giant Foxtail	54 seeds
Canada Thistle	27 seeds	Horsenettle	54 seeds
Field Bindweed	27 seeds	Quackgrass	54 seeds
Hedge Bindweed	27 seeds	Wild Mustard	54 seeds

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

Further specifications for each seed group are give below:

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza
Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

Tall Fescue (all approved varieties)	Bermudagrass
Kobe Lespedeza	Browntop Millet
Korean Lespedeza	German Millet - Strain R
Weeping Lovegrass	Centipedegrass
Carpetgrass	Clover - Red/White/Crimson

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)
Kentucky Bluegrass (all approved varieties)

Hard Fescue (all approved varieties)
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

Crownvetch
Pensacola Bahiagrass
Japanese Millet
Switchgrass
Reed Canary Grass

June 18, 2002

STANDARD SPECIAL PROVISIONS
ERRATA

Correct the 2002 Standard Specifications as follows:

Page 2-21, Subarticle 235-4(B)

In the third (3rd) sub-bullet under the eighth (8th) bullet in this subarticle, delete the word "subgrade" and insert the words "finished grade".

Page 3-4, Article 300-10

Change all references to 300-8 to 300-9.

Page 5-9, Subarticle 520-3(A)

Delete the words "at your option".

Page 5-10, Subarticle 520-6(A)

In the first sentence, add a period after "(B)" and delete the words "and (C).".

Delete the last sentence of the subarticle.

Page 8-47, Subarticle 862-6

Change the subarticle number from 862-6 to **862-7**.

Change all references from 862-5 to 862-6.

Page 8-49, Subarticle 864-4

In the first paragraph, change the Article reference from 862-3 to **864-3**.

Page 8-55, Subarticle 866-5(G)

In the third (3rd) pay item, insert the words "with Posts" after the word "Fence".

Page 10-1, Subarticle 1000-3(A)

In the second (2nd) paragraph, change 550 psi to 600 psi (4.1 MPa).

Page 10-2, Subarticle 1000-3(A)

In the last sentence of the second (2nd) paragraph on this page, change 550 psi to 600 psi (4.1 MPa).

Page 10-5, Table 1000-1

Under the column "Consistency Max. Slump" change the sub-heading 'Non-Vibrated' to 'Vibrated' and change the sub-heading 'Vibrated' to 'Non-Vibrated'. Under the column "Min. Cement Content" change the sub-heading 'Non-Vibrated' to 'Vibrated' and change the sub-heading 'Vibrated' to 'Non-Vibrated'.

Page 10-17, Table 1005-2

For Std. Size # 2S make the following changes:

- #50 (0.300) Sieve change the limits from 8 - 30 to **5 - 30**.
- #100 (0.150) Sieve change the limits from 0.5 - 10 to **0 - 10**.

For Std. Size # 2MS make the following changes:

- #50 (0.300) Sieve change the limits from 8 - 35 to **5 - 35**.
- #100 (0.150) Sieve change the limits from 0.5 - 20 to **0 - 20**.

Page 15-3, Article 1505-3

In the last paragraph of this article, change Article 300-6 to Article 300-7.

Page 15-10, Article 1510-5

In the fourth (4th) paragraph, insert a comma after the word "water".

Page 15-18, Article 1530-2

In the third (3rd) paragraph on the page, change "Section 812" to "Section 340".

C200725

SEPTEMBER 17, 2002

MINIMUM WAGES

Federal: The Fair Labor Standards Act provides that with certain exceptions every employer must pay wages at the rate of not less than FIVE DOLLARS AND FIFTEEN CENTS (\$5.15) per hour.

State: The North Carolina Minimum Wage Act provides that every employer shall pay to each of his employees wages at a rate of not less than FIVE DOLLARS AND FIFTEEN CENTS (\$5.15) per hour.

The minimum wage paid to all skilled labor employed on this contract shall be FIVE DOLLARS AND FIFTEEN CENTS (\$5.15) per hour.

The minimum wage paid to all intermediate labor employed on this contract shall be FIVE DOLLARS AND FIFTEEN CENTS (\$5.15) per hour.

The minimum wage paid to all unskilled labor on this contract shall be FIVE DOLLARS AND FIFTEEN CENTS (\$5.15) per hour.

This determination of the intent of the application of this act to the contract on this project is the responsibility of the Contractor.

The Contractor shall have no claim against the Department of Transportation for any changes in the minimum wage laws, State or Federal. It is the responsibility of the Contractor to keep himself fully informed of all Federal and State Laws affecting his contract.

STANDARD SPECIAL PROVISIONS
DIVISION 1
GENERAL REQUIREMENTS

SECTION 101
DEFINITIONS OF TERMS

101-1 GENERAL

Whenever the terms defined in this section are used in those specifications, in any of the contract documents, or on the plans, the intended meaning of such terms shall be as defined in this section.

101-2 ABBREVIATIONS

AAN	_____	American Association of Nurserymen
AAR	_____	Association of American Railroads
AASHTO	___	American Association of State Highway and Transportation Officials
ACI	_____	American Concrete Institute
ADT	_____	Annual Average Daily Traffic
AED	_____	Associated Equipment Distributors
AGC	_____	Associated General Contractors of America
AIA	_____	American Institute of Architects
AISC	_____	American Institute of Steel Construction
AISI	_____	American Iron and Steel Institute
ANSI	_____	American National Standards Institute, Inc.
ARA	_____	American Railway Association
AREA	_____	American Railway Engineering Association
ASLA	_____	American Society of Landscape Architects
ASTM	_____	American Society for Testing and Materials
AWWA	_____	American Water Works Association
AWS	_____	American Welding Society
AWPA	_____	American Wood Preserver's Association
CRSI	_____	Concrete Reinforcing Steel Institute
DHV	_____	Design Hourly Volume
EEI	_____	Edison Electric Institute
FHWA	_____	Federal Highway Administration, U.S. Department of Transportation
FSS	_____	Federal Specifications and Standards, General Services Administration
GS	_____	General Statutes of North Carolina
IES	_____	Illuminating Engineering Society
NEC		National Electrical Code
NEMA		National Electrical Manufacturers Association
NESC		National Electrical Safety Code
SPIB		Southern Pine Inspection Bureau

SSPC Steel Structures Painting Council
UL Underwriters' Laboratories, Inc.
AMRL AASHTO Materials Reference Laboratory
CCRL Cement and Concrete Reference Laboratory

101-3 ACT OF GOD.

Events in nature so extraordinary that the history of climate variations and other conditions in the particular locality affords no reasonable warning of them.

101-4 ADDITIONAL WORK.

Additional work is that which results from a change or alteration in the contract and for which there are existing contract unit prices, provided in the original contract or an executed supplemental agreement.

101-5 ADMINISTRATOR.

The State Highway Administrator.

101-6 ADVERTISEMENT.

The public advertisement inviting Request for Qualifications for the design and construction of specific projects.

101-7 ARTICLE.

A primary numbered subdivision of a section of the standard specifications.

101-8 AWARD.

The decision of the Board of Transportation to accept the proposal of the selected Design-Builder for work which is subject to the furnishing of payment and performance bonds, and such other conditions as may be otherwise provided by law, the Request for Proposals, and the Standard specifications.

101-9 BASE COURSE.

That portion of the pavement structure of planned thickness placed immediately below the pavement or surface course.

101-10 BID (OR PROPOSAL).

The offer of a Design-Builder in the form of a Design-Build price proposal and a Design-Build technical proposal to perform the work and to furnish the labor and materials at the prices quoted.

101-11 BID BOND OR BID DEPOSIT.

The security furnished by the Proposer with his proposal as guaranty that he will furnish the required bonds and execute such documents as may be required if his proposal is accepted.

101-12 BIDDER.

An individual, partnership, firm, corporation, or joint venture formally submitting a proposal for the work contemplated. On Design-Build projects the word refers to respondents to the Design-Build Proposal invitation.

101-13 BOARD OR BOARD OF TRANSPORTATION.

The Board created by the provisions of G.S. 143B-350 for the purpose of formulating policies and priorities for the Department of Transportation, and awarding all state highway construction contracts.

101-14 BRIDGE.

A structure including supports, erected over a depression or an obstruction such as water, highway, or railway, and having a track or passage way for carrying traffic or other moving loads and having a length measured along the center of the roadway of more than 20 feet between undercopings of end supports, spring lines of arches, or between extreme ends of openings for multiple reinforced concrete box structures.

Bridge Length. The length of a bridge structure is the overall length measured along the line of survey stationing back to back of backwalls of abutments, if present, otherwise end to end of the bridge floor.

Bridge Width. The clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs, guard timbers or face of parapets, or in the case of multiple height of curbs, between the bottoms of the lower risers.

101-15 CALENDAR DAY.

A day shown on the calendar beginning and ending at midnight.

101-16 CHIEF ENGINEER.

The Chief Engineer, Operations, Division of Highways, North Carolina Department of Transportation.

101-17 COMPLETION DATE.

That date set forth in the special provisions or as revised by authorized extensions, by which date it is required that the work set forth in the contract be satisfactorily completed.

101-18 CONSTRUCTION EASEMENT.

A right owned by the Department of Transportation in a parcel of land owned by a third party outside the highway right of way for the purpose of containing construction which exceeds the right of way.

101-19 CONTRACT.

The executed agreement between the Department of Transportation and the successful Proposer, covering the performance of the work and the compensation therefor.

The term contract is all inclusive with reference to all written agreements affecting a contractual relationship and all documents referred to therein. The contract shall specifically include, but not be limited to, the Design-Build Package, the Design-Build Technical Proposal, the Design-Build Price Proposal, the printed contract form and all attachments thereto, the contract bonds, the plans, the standard specifications and all supplemental specifications thereto, the standard special provisions and the project special provisions contained in the Design-Build Package, and all executed supplemental agreements, all of which shall constitute one instrument.

101-20 CONTRACT ITEM.

A specifically described unit of work for which a unit or lump sum price is provided in the original contract or an executed supplemental agreement. Synonymous with "Pay Item".

101-21 CONTRACT LUMP SUM PRICE.

The amount proposed for a lump sum item that has been submitted by the Design-Builder in his price proposal.

101-22 CONTRACT PAYMENT BOND.

A bond furnished by the Design-Builder and his corporate surety securing the payment of those furnishing labor, materials, and supplies for the design and construction of the project.

101-23 CONTACT PERFORMANCE BOND.

A bond furnished by the Design-Builder and his corporate surety guaranteeing the performance of the contract.

101-24 CONTRACT TIME.

The number of calendar days inclusive between the date of availability and the completion date, said dates being set forth in the contract, including authorized extensions to the completion date.

101-25 CONTRACT UNIT PRICE.

The unit price for a unit item established in an executed supplemental agreement.

101-26 CONTRACTOR.

The successful Proposer to whom the contract has been awarded, and who has executed the contract documents and furnished acceptable contract bonds.

101-27 CULVERT.

Any structure not classified as a bridge which provides an opening under the roadway.

101-28 CURRENT CONTROLLING OPERATION OR OPERATIONS.

Any operation or operations, as determined by the Engineer, which if delayed would delay the completion of the project.

101-29 DATE OF AVAILABILITY.

That date, set forth in the Request for Proposals, by which it is anticipated that the Contract will be executed and sufficient work sites within the project limits will be available for the Design-Builder to begin his controlling operations.

101-30 DEPARTMENT OR DEPARTMENT OF TRANSPORTATION.

A principal department of the Executive Branch which performs the functions of planning, design, construction, and maintenance of an integrated statewide transportation system.

101-31 DIVISION OF HIGHWAYS.

The division of the Department of Transportation which, under the direction of the Secretary of Transportation, carries out state highway planning, design, construction, and maintenance functions assigned to the Department of Transportation.

101-32 DRAINAGE EASEMENT.

A right, owned by the Department of Transportation, in a parcel of land owned by a third party outside the highway right of way, to construct and maintain ditches, channels, or structures for directing the course and flow of water outside the highway right of way.

101-33 EASEMENT.

A property right to use or control real property of another.

101-34 ENGINEER.

The Chief Engineer Operations, Division of Highways, North Carolina Department of Transportation, acting directly or through his duly authorized representatives.

101-35 EQUIPMENT.

All machinery and equipment, together with the necessary supplies, tools, and apparatus for upkeep and maintenance, all of which are necessary for the proper construction and acceptable completion of the work.

101-36 EXTRA WORK.

Work found necessary or desirable to complete fully the work as contemplated in the contract for which payment is not provided for by the contract unit or lump sum prices in the original contract. Extra work shall not be work which in the terms of the specifications and special provisions is incidental to work for which there is a contract price or work for which payment is included in some other contract unit or lump sum price.

101-37 FINAL ACCEPTANCE DATE.

That date on which all work set forth in the contract and work modified by the Engineer is satisfactorily completed excluding any observation periods not specifically made a part of the work by the specifications or special provisions.

101-38 FINAL ESTIMATE.

The document which contains a final statement of all quantities and total dollar amount for each item of work performed during the life of the contract including any adjustments to those amounts made under the terms of the contract. The final statement will be titled The Final Estimate and will be the document utilized to document final payment to the Design-Builder. Receipt of this document by the Design-Builder will begin the time frame for filing of a verified claim with the Department as provided for in G.S. 136-29 of the General Statutes of North Carolina.

101-39 FINAL ESTIMATE ASSEMBLY.

As constructed plans and other project records which establish the final statement of quantities to be paid and document work performed on the project.

101-40 FORCE ACCOUNT NOTICE.

A written notice to the Design-Builder that extra work ordered by the Engineer will be paid for as force account work.

101-41 FORCE ACCOUNT WORK.

Work that is paid for in accordance with Article 109-3 or on the basis of the force account formula provided in the contract.

101-42 HIGHWAY.

A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way. Synonymous with "Road" and "Street".

101-43 HOUR.

One of the 24 equal parts of a day.

101-44 INSPECTOR.

The authorized representative of the Engineer assigned to make a detailed inspection of any or all portions of the work and materials.

101-45 INTERMEDIATE COMPLETION DATE.

That date set forth in the contract or as revised by authorized extensions, by which date it is required that the portion of work set forth in the contract be satisfactorily completed.

101-46 INTERMEDIATE COMPLETION TIME.

The time set forth in the contract or as revised by authorized extensions, by which it is required that the portion of work set forth in the contract be satisfactorily completed.

101-47 INTERMEDIATE CONTRACT TIME (DAYS).

The number of calendar days inclusive between the date of availability and the completion date, said dates being set forth in the special provisions, including authorized extensions to the intermediate completion date.

101-48 INTERMEDIATE CONTRACT TIME (HOURS).

The number of hours inclusive between the time of availability and the intermediate completion time, said times being set forth in the special provisions, including authorized extensions to the intermediate completion time.

101-49 INVERT.

The lowest point in the internal cross section of a pipe or other culvert.

101-50 INVITATION TO BID.

The notification that proposals will be received for the design and construction of specific projects.

101-51 LABORATORY.

The testing laboratory of the Department of Transportation, Design-Builder, or any other testing laboratory which may be designated or approved by the Engineer.

101-52 LOCAL TRAFFIC.

Traffic which must use the facility under construction in order to reach its destination.

101-53 MAJOR AND MINOR CONTRACT ITEMS.

Major contract items are listed as such in the project special provisions. All other original contract items and extra work shall be considered as minor items.

101-54 MATERIALS.

Any substances which may be incorporated into the construction of the project.

101-55 MEDIAN.

The center section of a divided highway which separates the traffic lanes in one direction from the traffic lanes in the opposite direction.

101-56 PAVEMENT STRUCTURE.

The combination of base and surface courses placed on a subgrade to support the traffic load and distribute it to the roadbed.

101-57 PAY ITEM.

Synonymous with "Contract Item".

101-58 PLANS.

The project plans, Standard Drawings, working drawings and supplemental drawings, or reproductions thereof, approved by the Engineer, which show the location, character, dimensions and details of the work to be performed

(A) Standard Drawings:

Drawings approved for repetitive use, showing details to be used where appropriate. All Standard Drawings approved by the Department plus subsequent revisions and additions. Standard Drawings are available for purchase from:

Randy A. Garris, PE
State Contract Officer
1591 Mail Service Center
Raleigh, NC 27699-1591

(B) Initial Plans:

Department-furnished drawings included as part of the Design-Build Package.

(C) Project Plans:

Construction drawings prepared, sealed and completed by the Design-Builder. Specific details and dimensions peculiar to the work, which are completed by the Design-Builder.

(D) Working Drawings and Supplemental Drawings:

Supplemental design sheets, shop drawings, or similar data which the Design-Builder is required to submit to the Engineer as described in the Scope of Work.

(E) As-Constructed Drawings:

Final drawings prepared by the Design-Builder, documenting the details and dimensions, of the completed work.

101-59 PROJECT.

The specific section of the highway together with all appurtenances, and the design and construction to be performed thereon under the contract.

101-60 PROJECT SPECIAL PROVISIONS.

Special provisions peculiar to the project and not otherwise thoroughly or appropriately set forth in the standard specifications or plans.

101-61 PROPOSAL FORM.

This definition is deleted for this project.

101-62 RIGHT OF WAY.

The land area shown on the plans as right of way to be furnished by the Department of Transportation within which the project is to be constructed.

101-63 ROAD.

Synonymous with "Highway" and "Street".

101-64 ROADBED.

The graded portion of a highway usually considered as the area between the intersections of top and side slopes, upon which the base course, surface course, shoulders, and median are constructed.

101-65 ROADSIDE.

A general term denoting the area within the limits of the right of way adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

101-66 ROADWAY.

The portion of a highway within limits of construction.

101-67 SECTION.

A numbered chapter of the standard specifications.

101-68 SHOULDER.

The portion of the roadway adjacent to the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

101-69 SIDEWALK.

That portion of the roadway primarily constructed for pedestrian traffic.

101-70 SKEW ANGLE.

The angle between the centerline of the project and the centerline of a pipe, culvert, bridge pier, bent, abutment, or other drainage feature, measured to the right of the project centerline facing in the direction of progressing stations.

101-71 SPECIAL PROVISIONS.

Project special provisions and standard special provisions taken together as one body of special provisions.

101-72 SPECIFICATIONS.

The general term comprising all the directions, provisions, and requirements contained or referred to in the standard specifications, including the supplemental specifications, together with such additional directions, provisions, and requirements which may be added or adopted as special provisions.

101-73 STANDARD SPECIAL PROVISIONS.

Special directions or requirements not otherwise thoroughly or appropriately set forth in the standard specifications and which are peculiar to a selected group of projects.

101-74 STANDARD SPECIFICATIONS.

The general term comprising all the directions, provisions, and requirements contained or referred to in this book entitled "Standard Specifications for Roads and Structures", and in any subsequent revisions or additions to such book that are issued under the title "Supplemental Specifications".

101-75 STATE.

The State of North Carolina.

101-76 STATION.

A station, when used as a term of measurement, will be 100 linear feet measured horizontally. When used as a location, it will be designated point on the project.

101-77 STREET.

Synonymous with "Highway" and "Road".

101-78 SUBCONTRACTOR.

An individual, partnership, firm, joint venture, or corporation to whom the Design-Builder, with the written consent of the Engineer, sublets any part of the contract.

101-79 SUBGRADE.

That portion of the roadbed prepared as a foundation for the pavement structure including curb and gutter. On portions of projects which do not include the construction of a base course or pavement, the presence of the subgrade will not be recognized during the life of such contract.

101-80 SUBSTRUCTURE.

All of that part of the structure below the bearings of simple and continuous spans, spans, skew back of arches and tops of footings of rigid frames, together with the backwalls, and wingwalls.

101-81 SUPERINTENDENT.

The representative of the Design-Builder authorized to supervise and direct the construction for the Design-Builder and to receive and fulfill directions from the Engineer.

101-82 SUPERSTRUCTURE.

All of the part of the structure exclusive of the substructure.

101-83 SUPPLEMENTAL AGREEMENT.

A written agreement between the Design-Builder and the Department of Transportation covering amendments to the contract.

101-84 SUPPLEMENTAL SPECIFICATIONS.

General revisions or additions to this book of standard specifications which are issued under the title of "Supplemental Specifications", and which shall be considered as part of the standard specifications; or specifications, regulations, standards, or codes referenced in the contract documents.

101-85 SURETY.

A corporate bonding company furnishing the bid bond or furnishing the contract payment and performance bonds.

101-86 TEMPORARY CONSTRUCTION EASEMENT.

A temporary right, owned by the Department of Transportation, in a parcel of land owned by a third party outside the highway right of way, for the use of the Department of Transportation during the construction and which reverts to the third party on completion of construction.

101-87 THROUGH TRAFFIC.

Traffic which can reach its destination by a route or routes other than the facility under construction.

101-88 TIME OF AVAILABILITY.

That time, set forth in the special provisions, by which it is anticipated that sufficient work sites within the project limits will be available for the Design-Builder to begin his controlling operations.

101-89 TOTAL AMOUNT BID.

Same as total price bid. The total amount bid will be considered to be the correct sum total obtained by adding together the amounts bid for every item in the Design-Build Price proposal.

101-90 UNBALANCED BID.

A bid which includes any unbalanced bid price.

101-91 UNBALANCED BID PRICE.

A unit or lump sum bid price that does not reflect reasonable actual costs which the Proposer anticipates for the performance of the item in question along with a reasonable proportionate share of the Proposer's anticipated profit, overhead costs, and other indirect costs.

101-92 WORK.

Work shall mean the furnishing of all labor, materials, equipment, and incidentals necessary or convenient to the successful completion of the project, or any part, portion, or phase thereof, and the carrying out of all duties and obligations imposed by the contract.

101-93 WORKING DRAWINGS.

Stress sheets, shop drawings, erection drawings, falsework drawings, cofferdam drawings, catalog cuts, or any other supplementary drawings or similar data which the Design-Builder is required to submit to the Engineer for review and/or approval.

101-94 DESIGN-BUILD.

A form of contracting in which the successful proposer undertakes responsibility for both the design and construction of a project.

101-95 DESIGN-BUILDER.

An individual, partnership, joint venture, corporation or other legal entity that furnishes the necessary design and construction services, whether by itself or through subcontracts.

101-96 DESIGN-BUILD PACKAGE.

The documents prepared by the Department for a Design-Build project, containing all forms, information, drawings or other documentation furnished to proposers to guide the preparation and submittal of a proposal for a Design-Build project.

101-97 DESIGN-BUILD PROPOSAL.

A proposal to contract consisting of a separately sealed technical proposal and a separately sealed price proposal submitted in response to a request for proposal on a Design-Build project. The technical proposal and price proposal, in some cases, may be scheduled to be submitted on different dates.

101-98 DESIGN-BUILD PRICE PROPOSAL.

The part of a design-Build proposal containing the offer of a Proposer, submitted on the prescribed forms, to perform the work and furnish the labor and materials at the price quoted.

101-99 DESIGN-BUILD TECHNICAL PROPOSAL.

A submittal from a proposer, in accordance with requirements of the Design-Build Package, for the purpose of final selection.

101-100 PROJECT MANAGER.

The Department's authorized designee responsible for the administration of the Design-Build project.

101-101 TECHNICAL SPECIFICATIONS.

Additions and revisions to the Standard Specifications covering conditions and requirements peculiar to a Design-Build project.

101-102 TABLE OF VALUES.

A table prepared prior to beginning of construction listing estimated quantity of items for which a testing frequency is defined in the Minimum Sampling Guide. This estimate will be used to determine required frequency of testing for materials and products incorporated into construction, and shall be updated monthly and provided to the Engineer.

5-11-01 Version

**SECTION 102
PROPOSAL REQUIREMENTS AND
CONDITIONS**

102-1 INVITATION TO BID.

This section is deleted from this project and replaced with the special provision titled “Submittal of Proposals”, which discusses the process used to evaluate the Technical and Price proposals.

102-2 PREQUALIFICATION FOR PROPOSERS.

Proposers shall prequalify with the Department. The requirements for prequalification will be furnished each prospective Proposer by the Engineer upon receipt of a written request. A Price Proposal or Technical Proposal will not be opened unless all prequalification requirements have been met by the Proposer and have been found to be acceptable by the Engineer.

In addition to the Experience Questionnaire, prequalification requirements will include provisions for the evaluation of a firm’s safety record. A completed ‘Safety Index Rating’ form must be on file with the Department. To be prequalified to bid each firm must maintain a satisfactory safety index. An overall safety index equal to or greater than 60 is considered satisfactory. In addition, an index between 60 and 69 may be considered marginal and may result in an in-depth safety audit of a firm’s safety practices. An overall safety index equal to or less than 59 is considered unsatisfactory and will prohibit prequalification of new firms or the requalification of existing firms at the time of their biennium renewal.

When an existing prequalified company’s safety index becomes unsatisfactory as described above, the Engineer may require the Design-Builder to state in writing the reason(s) for the unsatisfactory rating and produce such supporting data as may be necessary to evaluate the circumstances surrounding the rating. When the Design-Builder cannot provide justification to raise the unsatisfactory safety index, the Engineer may invoke one or more of the following sanctions:

1. Removal of the firm from the list of prequalified bidders
2. Placement of the firm on probation for up to two years
3. Auditing of the firm’s safety practices
4. Giving a written warning to correct any safety deficiencies

Firms not approved or disqualified to bid due to an unsatisfactory safety index will not be approved or reinstated to bid until they can provide adequate evidence that all safety deficiencies have been corrected.

Upon a determination by the Department that all prequalification requirements have been met, the applicant will be assigned a Prequalification Number. This Prequalification Number

will thereafter be assigned to all applicants for prequalification or requalification which the Department determines are under sufficient common ownership and management control to warrant prequalification as a single entity. This determination by the Department shall be based on the information submitted with the Experience Questionnaire and any other information obtained by the Department.

No Proposer will be prequalified who, at the time of the application for prequalification is determined by the Engineer to lack the financial capability to complete projects.

Proposers shall comply with all applicable laws regulating the practice of general contracting as contained in Chapter 87 of the General Statutes of North Carolina.

102-3 CONTENTS OF DESIGN-BUILD PACKAGES.

A Design-Build Package will be furnished by the Department to the selected Proposers from among the respondents to the Request for Qualifications. Each Design-Build Package will be marked on the front cover by the Department with an identifier of the Proposer to whom it is being furnished. This package will state the location of the project and will show a schedule of contract items for which Technical and Price proposals are invited. It will set forth the date and time Technical and Price Proposals are to be submitted and will be opened. The package will also include any special provisions or requirements which vary from or are not contained in any preliminary plans or standard specifications.

The package will also include the printed contract forms and signature sheets for execution by both parties to the contract. In the event the Proposer is awarded the contract, execution of the Design-Build Proposal will be considered the same as execution of the contract by the Proposer.

All papers bound with the package are necessary parts thereof and shall not be detached, taken apart, or altered.

The plans, standard specifications, and other documents designated in the Design-Build package shall be considered a part of the Design-Build package whether attached or not.

Up to 3 copies of the Design-Build Package will be furnished to each prospective Proposer upon request. Additional copies may be purchased for the sum of \$25 each. **The copy marked with the Proposers name and prequalification number is to be returned to the Department.**

102-4 COMBINATION BIDS.

This section is deleted for this project.

102-5 INTERPRETATION OF QUANTITIES IN PROPOSAL FORM.

This section is deleted for this project.

102-6 EXAMINATION OF PRELIMINARY PLANS, SPECIFICATIONS, CONTRACT, AND SITE OF WORK.

The Proposer shall examine carefully the site of the work contemplated, the preliminary plans and specifications, and the Design-Build Package.. The submission of a Technical Proposal and a Price Proposal shall be conclusive evidence that the Proposer has investigated and

is satisfied as to the conditions to be encountered; as to the character, quality, and scope of work to be performed; the quantities of materials to be furnished; and as to the conditions and requirements of the proposed contract.

A Proposer is cautioned to make such independent investigation and examination as he deems necessary to satisfy himself as to conditions to be encountered in the performance of the work and with respect to possible local material sources, the quality and quantity of material available from such property, and the type and extent of processing that may be required in order to produce material conforming to the requirements of the specifications.

102-7 SUBSURFACE INFORMATION.

If Subsurface Information is available on this project, a copy of the Subsurface Information may be obtained from the Department. A copy of the Subsurface Information will be mailed to the prospective proposers upon request.

The Subsurface Information and the Subsurface Investigation on which it is based was made for the purpose of information only. The various field boring logs, rock cores, and soil test data available may be reviewed or inspected in Raleigh at the office of the Geotechnical Unit. Neither the Subsurface Information nor the field boring logs, rock cores, or soil test data is part of the contract.

General soil and rock strata descriptions and indicated boundaries are based on a geotechnical interpretation of all available subsurface data and may not necessarily reflect the actual subsurface conditions between borings or between sampled strata within the borehole. The laboratory sample data and the in situ (in-place) test data can be relied on only to the degree of reliability inherent in the standard test method. The observed water levels or soil moisture conditions indicated in the subsurface investigations are as recorded at the time of the investigation. These water levels or soil moisture conditions may vary considerably with time according to climatic conditions including temperature, precipitation, and wind, as well as other nonclimatic factors.

THE PROPOSER IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE INFORMATION ARE PRELIMINARY ONLY. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE OR OPINIONS OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE PROPOSER IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS THEY DEEM NECESSARY TO SATISFY THEIRSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE PROPOSER SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

102-8 PREPARATION AND SUBMISSION OF PRICE PROPOSALS .

All Price Proposals shall be prepared and submitted in accordance with the following listed requirements:

1. The Design-Build Package provided by the Department shall be used and shall not be taken apart or altered. The Price Proposal shall be submitted on the same form which has been furnished to the Proposer by the Department as identified by the Proposers name marked on the front cover by the Department.
2. All entries including signatures shall be written in ink.
3. The Proposer shall submit a lump sum price for every item in the Design-Build Price Proposal.
The lump sum prices bid for the various contract items shall be written in figures.
4. An amount bid shall be entered in the Design-Build Package for every lump sum item and the price shall be written in figures in the "Amount Bid" column in the Design-Build Package.
5. The total amount bid shall be written in figures in the proper place in the Design-Build Package. The total amount bid shall be determined by adding the amounts bid for each lump sum item.
6. Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Proposer shall initial the change in ink.
7. The Price Proposal shall be properly executed. In order to constitute proper execution, the Price Proposal shall be executed in strict compliance with the following:
 - a. If a Price Proposal is by an individual, it shall show the name of the individual and shall be signed by the individual with the word "Individually" appearing under the signature. If the individual operates under a firm name, the bid shall be signed in the name of the individual doing business under the firm name.
 - b. If the Price Proposal is by a corporation, it shall be executed in the name of the corporation by the President, Vice President, or Assistant Vice President. It shall be attested by the Secretary or Assistant Secretary. The seal of the corporation shall be affixed. If the Price Proposal is executed on behalf of a corporation in any other manner than as above, a certified copy of the minutes of the Board of Directors of said corporation authorizing the manner and style of execution and the authority of the person executing shall be attached to the Price Proposal or shall be on file with the Department.
 - c. If the Price Proposal is made by a partnership, it shall be executed in the name of the partnership by one of the general partners.
 - d. If the Price Proposal is a joint venture, it shall be executed by each of the joint venturers in the appropriate manner set out above. In addition, the execution by the joint venturers shall appear below their names.

- e. The Price Proposal execution shall be notarized by a notary public whose commission is in effect on the date of execution. Such notarization shall be applicable both to the Price Proposal and to the non-collusion affidavit which is part of the signature sheets.
- 8. The Price Proposal shall not contain any unauthorized additions, deletions, or conditional bids.
- 9. The Proposer shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.
- 10. The Price Proposal shall be accompanied by a bid bond on the form furnished by the Department or by a bid deposit. The bid bond shall be completely and properly executed in accordance with the requirements of Article 102-11. The bid deposit shall be a certified check or cashier check in accordance with Article 102-11.
- 11. The Price Proposal shall be placed in a sealed envelope and shall have been delivered to and received by the Department prior to the time specified in the Design-Build Package.

102-9 COMPUTER BID PREPARATION.

This section is deleted from this project

102-10 NON-COLLUSION AFFIDAVIT.

In compliance with Section 112(c) of title 23 USC, and current regulations of the Department, each and every Proposer will be required to furnish the Department with an affidavit certifying that the Proposer has not entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with his Price Proposal on the project. The affidavit shall also conclusively indicate that the Proposer intends to do the work with its own bonafide employees or subDesign-Builders and is not bidding for the benefit of another Design-Builder.

Affidavit forms will be included in the Design-Build Package as part of the signature sheets. Execution of the signature sheets will also constitute execution of the non-collusion affidavit. The signature sheets shall be notarized.

102-11 BID BOND OR BID DEPOSIT.

Each Price proposal shall be accompanied by a corporate bid bond or a bid deposit of a certified or cashiers check in the amount of at least 5% of the total amount bid for the contract. No Price proposal will be considered or accepted unless accompanied by one of the foregoing securities. The bid bond shall be executed by a Corporate Surety licensed to do business in North Carolina and the certified check or cashiers check shall be drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation and made payable to the Department of Transportation in an amount of at least 5% of the total amount bid for the contract. The condition of the bid bond or bid deposit is: the Principal shall not withdraw its Price proposal within 60 days after the opening of the same, and if the Board of Transportation shall award a contract to the Principal, the Principal shall within 14 calendar days after the notice of award is received by him give payment and performance bonds with good and sufficient

surety as required for the faithful performance of the contract and for the protection of all persons supplying labor and materials in the prosecution of the work; in the event of the failure of the Principal to give such payment and performance bonds as required, then the amount of the bid bond shall be immediately paid to the Department as liquidated damages or, in the case of a bid deposit, the deposit shall be forfeited to the Department.

Withdrawal of a Price proposal due to a mistake made in the preparation of the Price proposal, where permitted by Article 103-3, shall not constitute withdrawal of a Price proposal as cause for payment of the bid bond or forfeiture of the bid deposit.

When a Price proposal is secured by a bid bond, the bid bond shall be on the form furnished by the Department. The bid bond shall be executed by both the Proposer and a Corporate Surety licensed under the laws of North Carolina to write such bonds. The execution by the Proposer shall be in the same manner as required by Article 102-8 for the proper execution of the Price proposal. The execution by the Corporate Surety shall be the same as is provided for by Article 102-8, Item 7b, for the execution of the Price proposal by a corporation. The seal of the Corporate Surety shall be affixed to the bid bond. The bid bond form furnished is for execution of the Corporate Surety by a General Agent or Attorney in Fact. A certified copy of the Power of Attorney shall be attached if the bid bond is executed by a General Agent or Attorney in Fact. The Power of Attorney shall contain a certification that the Power of Attorney is still in full force and effect as of the date of the execution of the bid bond by the General Agent or Attorney in Fact. If the bid bond is executed by the Corporate Surety by the President, Vice President, or Assistant Vice President, and attested to by the Secretary or Assistant Secretary, then the bid bond form furnished shall be modified for such execution, instead of execution by the Attorney in Fact or the General Agent.

When a Price proposal is secured by a bid deposit (certified check or cashiers check), the execution of a bid bond will not be required.

If the Proposer has failed to meet all conditions of the bid bond but the Department has not received the amount due under the bid bond, the Proposer may be disqualified from further bidding as provided in Article 102-16.

102-12 DELIVERY OF PROPOSALS.

All Price Proposals shall be placed in a sealed envelope having the name and address of the Proposer, and the statement " Price Proposal for the Design/Build of State Highway Project No. _____in_____county(s)" on the outside of the envelope. If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope addressed to the Contract Officer as stated in the Design-Build Package. The outer envelope shall also bear the statement " Price Proposal for the Design/Build of State Highway Project No. _____". All Technical Proposals shall be placed in a sealed envelope having the name and address of the Proposer, and the statement " Technical Proposal for the Design/Build of State Highway Project No. _____in_____county(s)" on the outside of the envelope. If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope addressed to the Contract Officer as stated in the Design-Build Package. The outer envelope shall also bear the statement " Technical Proposal for the Design/Build of

State Highway Project No. _____". If delivered in person on or before the due date, the sealed envelope shall be delivered to the office of the Contract Officer as indicated in the Design-Build Package. Price Proposals and Technical Proposals shall be submitted in accordance with the project special provision "Submittal of Proposals" contained elsewhere in this Design Build package.

All Price Proposals and Technical Proposals shall be delivered prior to the time specified in the Design-Build Package. Price proposals and Technical Proposals received after such time will not be accepted and will be returned to the Proposer unopened.

102-13 WITHDRAWAL OR REVISION OF PROPOSALS.

A Design-Build proposer will not be permitted to withdraw its Technical and Price proposals after they have been submitted to the Department.

102-14 RECEIPT AND OPENING OF PROPOSALS.

Price Proposals will be opened and read publicly at the time and place indicated in the Design-Build Package. The scores of the previously conducted evaluation of the Technical Proposals will also be read publicly at this time. Proposers, their authorized agents, and other interested parties are invited to be present.

102-15 REJECTION OF PRICE PROPOSALS.

Any Price proposal submitted which fails to comply with any of the requirements of Article 102-8, 102-11, or with the requirements of the project scope and functional specifications shall be considered irregular and may be rejected.

Irregularities due to apparent clerical errors and omissions may be waived in accordance with Article 103-2.

Any Price proposal including any unit or lump sum bid price which is significantly unbalanced to the potential detriment of the Department will be considered irregular and may be rejected. In the event the Board determines it is in the best public interest to accept such irregular Price proposal, it may award the contract based on such Price proposal subject to the provisions of Subarticle 109-4(B).

A Price proposal which does not contain costs for all proposal items shall be considered irregular and may be rejected.

In addition to the above, any Price proposals for contracts not funded with any Federal funds which are submitted by any Proposer who has failed to obtain the appropriate General Contractor's license, as required by Chapter 87 of the General Statutes of North Carolina, shall be considered irregular and will not be considered for award.

The right to reject any and all Proposals shall be reserved to the Board.

102-16 DISQUALIFICATION OF PROPOSERS.

Any one of the following causes may be justification for disqualifying a Proposer from further bidding until he has applied for and has been requalified in accordance with Article 102-2:

1. Unsatisfactory progress in accordance with Article 108-8.
2. Being declared in default in accordance with Article 108-9.

3. Uncompleted contracts which, in the judgment of the Chief Engineer, might hinder or prevent the timely completion of additional work if awarded.
4. Failure to comply with prequalification requirements.
5. The submission of more than one Price proposal for the same contract by an individual, partnership, joint venture, or corporation prequalified under the same prequalification number.
6. Evidence of collusion among Proposers. Each participant in such collusion will be disqualified.
7. Failure to furnish a non-collusion affidavit upon request.
8. Failure to comply with Article 108-6.
9. Failure to comply with a written order of the Engineer as provided in Article 105-1 if in the judgment of the Chief Engineer such failure is of sufficient magnitude to warrant disqualification.
10. Failure to satisfy the Disadvantaged Business Enterprise requirements of the project special provisions.
11. The Department has not received the amount due under a forfeited bid bond or under the terms of a performance bond.
12. Failure to submit within 60 days after being requested by the Engineer, or the submission of false information in, the documents required by Article 109-9.
13. Failure to return overpayments as directed by the Engineer.
14. Recruitment of Department employees as prohibited by Article 108-5.
15. Failure to maintain a satisfactory safety index as required by Article 102-2.

Upon a determination that a Proposer should be disqualified for one or more of the reasons listed above, the Department may, at its discretion, remove all entities prequalified under the same Prequalification Number.

SECTION 103

AWARD AND EXECUTION OF CONTRACT

103-1 CONSIDERATION OF PRICE PROPOSALS.

After the Price proposals are opened and read, they will be tabulated. The Price proposal and score of the technical proposal will be made available to the public. In the event of errors, omissions, or discrepancies in the costs, corrections to the Price proposal will be made in accordance with the provisions of Article 103-2. Such corrected costs will be used to determine the lowest adjusted price.

After the reading of the Price proposals and technical scores, the Department will calculate the lowest adjusted price as described in the "Special Provision for Instructions to Proposers".

The right is reserved to reject any or all Price proposals, to waive technicalities, to request the Proposer with the lowest adjusted price to submit an up-to-date financial and operating statement, to advertise for new proposals, or to proceed to do the work otherwise, if in the judgment of the Board, the best interests of the State will be promoted thereby.

103-2 CORRECTION OF PRICE PROPOSAL ERRORS.

(A) General:

The provisions of this article shall apply in waiving irregularities and correcting apparent clerical errors and omissions in the "amount bid" and "total amount bid" for bid items.

(B) Discrepancy in the "Total Amount Bid" and the addition of the "Amount Bid" for each line Item.

In the case of the Total Amount Bid does not equal the summation of each Amount Bid for the line items, the Total Amount Bid shall be deemed to be the correct total for the entire project.

(C) Omitted Total Amount Bid –Amount Bid Completed

If the Total Amount Bid is not completed and the Amount Bid for all line items is completed the Total Amount Bid shall be the summation of the Amount Bid for all line items.

103-3 WITHDRAWAL OF PRICE PROPOSAL -MISTAKE.

(A) Criteria for Withdrawal of Price Proposal:

The Department of Transportation may allow a Proposer submitting a Price proposal to withdraw his Price proposal after the scheduled time of Price proposal opening upon a determination that:

1. A mistake was in fact made in the preparation of the Price proposal.
2. The mistake in the Price proposal is of a clerical or mathematical nature and not one of bad judgment, carelessness in inspecting the work site, or in interpreting the functional requirements.
3. The mistake is found to be made in good faith and was not deliberate or by

reason of gross negligence.

4. The amount of the error or mistake is equal to or greater than 3 percent of the total amount of Price proposal.
5. The Proposers notice of his mistake and request for withdrawal of the Price proposal by reason of the mistake was promptly communicated to the Chief Engineer and in no instance longer than 48 hours after the scheduled time of Price proposal opening. If the Proposer notifies the Chief Engineer verbally, written notice of mistake must be submitted within 48 hours to the Chief Engineer accompanied by copies of Price proposal preparation information.
6. The Department of Transportation will not be prejudiced or damaged except for the loss of the Price proposal.

(B) Hearing by Chief Engineer:

If a files a notice of mistake along with a request to withdraw his Price proposal, the Chief Engineer (or his designee) will promptly hold a hearing thereon. The Chief Engineer will give to the requesting Proposer reasonable notice of the time and place of any such hearing. The Proposer may appear at the hearing and present the original working papers, documents, or materials used in the preparation of the Price proposal sought to be withdrawn, together with other facts and arguments in support of his request to withdraw his Price proposal. The Proposer will be required to present a written affidavit that the documents presented are the original, unaltered documents used in the preparation of the Price proposal.

(C) Action by State Highway Administrator:

A determination may be made by the Administrator that the Proposer meets the criteria for withdrawal of the Price proposal as set forth in Subarticle 103-3(A) upon presentation of clear and convincing evidence by the Proposer. The Chief Engineer will present his findings to the State Highway Administrator for action on the Proposer's request. The Chief Engineer will advise the Proposer of the Administrator's decision prior to the Board of Transportation's consideration of award.

(D) Bid Bond:

If a bid mistake is made and a request to withdraw the Price proposal is made, the bid bond shall continue in full force and effect until there is a determination by the Administrator that the conditions in Subarticle 103-3(A) have been met. The effect of the refusal of the Proposer to give payment and performance bonds within 14 calendar days after the notice of award is received by him, if award has been made by the Board of Transportation after consideration and denial of the Proposer's request to withdraw his Price proposal, shall be governed by the terms and conditions of the bid bond.

103-4 AWARD OF CONTRACT.

(A) General:

The North Carolina Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252) and the Regulations of the Department of

Transportation (49 CFR, Part 21), issued pursuant to such act, hereby notifies all proposers that it will affirmatively insure that contracts entered in pursuant to this Request for Proposals, if awarded, will be made by the Board of Transportation to the Proposer with the lowest adjusted price as outlined in the Design-Build package without discrimination on the grounds of race, color, or national origin. The Proposer with the lowest adjusted price will be notified by letter that his proposal has been accepted and that he has been awarded the contract. This letter shall constitute the notice of award. The notice of award, if the award be made, will be issued within 60 days after the opening of Price proposals, except that with the consent of the Proposer with the lowest adjusted price the decision to award the contract to such Proposer may be delayed for as long a time as may be agreed upon by the Department and such Proposer. In the absence of such agreement, the Proposer with the lowest adjusted price may withdraw his proposal at the expiration of the 60 days without penalty if no notice of award has been issued.

Award of a contract involving any unbalanced bid price(s) may be made in accordance with the provisions of Article 102-15.

103-5 CANCELLATION OF AWARD.

The Board of Transportation reserves the right to rescind the award of any contract at any time before the receipt of the properly executed contract bonds from the successful Proposer.

103-6 RETURN OF BID BOND OR BID DEPOSIT.

All bid bonds will be retained by the Department until the contract bonds are furnished by the successful Proposer, after which all such bid bonds will be destroyed unless the individual bid bond form contains a note requesting that it be returned to the Proposer or the Surety.

Checks which have been furnished as a bid deposit will be retained until after the contract bonds have been furnished by the successful Proposer, at which time Department of Transportation warrants in the equivalent amount of checks which were furnished as a bid deposit will be issued .

103-7 CONTRACT BONDS.

The successful Proposer, within 14 calendar days after the notice of award is received by him, shall provide the Department with a contract payment bond and a contract performance bond each in an amount equal to 100 percent of the amount of the contract. All bonds shall be in conformance with G.S. 44A-33. The corporate surety furnishing the bonds shall be authorized to do business in the State

103-8 EXECUTION OF CONTRACT.

As soon as possible following receipt of the properly executed contract bonds, the Department will complete the execution of the contract, retain the original contract, and return one certified copy of the contract to the Proposer .

103-9 FAILURE TO FURNISH CONTRACT BONDS.

The successful Proposer's failure to file acceptable bonds within 14 calendar days after the notice of award is received by him shall be just cause for the forfeiture of the bid bond or bid deposit and rescinding the award of the contract. Award may then be made to the Proposer with the next lowest adjusted price Proposer or the work may be readvertised and constructed under contract or otherwise, as the Board of Transportation may decide.

SECTION 104 SCOPE OF WORK

104-1 INTENT OF CONTRACT.

The intent of the contract is to prescribe the work or improvements which the Design-Builder undertakes to perform, in full compliance with the contract. In case the method or character of any part of the work is not covered by the contract, this section shall apply. The Design-Builder shall perform all work in accordance with the contract or as may be modified by written orders, and shall do such special, additional, extra, and incidental work as may be considered necessary to complete the work to the full intent of the contract. Unless otherwise provided elsewhere in the contract, the Design-Builder shall furnish all implements, machinery, equipment, tools, materials, supplies, transportation, and labor necessary for the design, prosecution and completion of the work.

104-2 SUPPLEMENTAL AGREEMENTS.

Whenever it is necessary to make amendments to the contract to satisfactorily complete the proposed design and construction and/or to provide authorized time extensions, the Engineer shall have the authority to enter into a supplemental agreement covering such amendments.

Supplemental agreements shall become a part of the contract when executed by the Engineer and an authorized representative of the Design-Builder. The Design-Builder shall file with the Engineer a copy of the name or names of his representatives who are authorized to sign supplemental agreements.

104-3 ALTERATIONS OF CONTRACT

The Engineer reserves the right to make, at any time during the progress of the work, such alterations in the contract as may be found necessary or desirable. Under no circumstances will an alteration involve work beyond the termini of the proposed construction except as may be necessary to satisfactorily complete the project. Such alterations shall not invalidate the contract nor release the Surety, and the Design-Builder agrees to perform the work as altered at his contract unit or lump sum prices the same as if it had been a part of the original contract except as otherwise herein provided.

An adjustment in the affected contract unit or lump sum prices due to alterations in the contract that materially change the character of the work and the cost of performing the work will be made by the Engineer only as provided in this article.

If the Engineer makes an alteration in the contract that he determines will materially change the character of the work and the cost of performing the work, an adjustment will be made and the contract modified in writing accordingly. The Design-Builder will be paid for performing the affected work in accordance with Subarticle 104-8(A).

When the Design-Builder is required to perform work, which is, in his opinion, an alteration in the contract that materially changes the character of the work and the cost of performing the work, he shall notify the Engineer in writing prior to performing such work. The Engineer will investigate and, based upon his determination, one of the following will occur:

1. If the Engineer determines that the affected work is an alteration of the plans or details of construction that materially changes the character of contract, the Design-Builder will be

notified in writing by the Engineer and compensation will be made in accordance with Subarticle 104-8(A).

2. If the Engineer determines that the work is not such an alteration in the contract that materially changes the character of the work and the cost of performing the work, he will notify the Design-Builder in writing of his determination. If the Design-Builder, upon receipt of the Engineer's written determination, still intends to file a claim for additional compensation by reason of such alteration, he shall notify the Engineer in writing of such intent prior to beginning any of the alleged altered work and the provisions of Subarticle 104-8(B) shall be strictly adhered to.

No contract adjustment will be allowed under this article for any effects caused on unaltered work.

104-4 SUSPENSIONS OF WORK ORDERED BY THE ENGINEER.

(A) Suspensions of the Work Ordered by the Engineer:

When the Engineer suspends in writing the performance of all or any portion of the work for a period of time not originally anticipated, customary, or inherent to the construction industry and the Design-Builder believes that additional compensation for idle equipment and/or labor is justifiably due as a result of such suspension, the Design-Builder shall notify the Engineer in writing of his intent to file a claim for additional compensation within 7 days after the Engineer suspends the performances of the work and the provisions of Subarticle 104-8 (C) shall be strictly adhered to.

Within 14 calendar days of receipt by the Design-Builder of the notice to resume work, the Design-Builder shall submit his claim to the Engineer in writing. Such claim shall set forth the reasons and support for such adjustment in compensation, including cost records, and any other supporting justification in accordance with Subarticle 104-8(C).

(B) Alleged Suspension:

If the Design-Builder contends he has been prevented from performing all or any portion of the work for a period of time not originally anticipated, customary, or inherent to the construction industry because of conditions beyond the control of and not the fault of the Design-Builder, its suppliers, or subcontractors at any tier, and not caused by weather, but the Engineer has not suspended the work in writing, the Design-Builder shall submit in writing to the Engineer a notice of intent to file a claim for additional compensation by reason of such alleged suspension. No adjustment in compensation will be allowed for idle equipment and/or labor prior to the time of the submission of the written notice of intent to file a claim for additional compensation by reason of such alleged suspension. Upon receipt, the Engineer will evaluate the Design-Builder's notice of intent to file a claim for additional compensation. If the Engineer agrees with the Design-Builder's contention, the Engineer will suspend in writing the performance of all or any portion of the work and the provisions of Subarticle 104-8(C) shall be strictly adhered to.

If the Engineer does not agree with the Design-Builder's contention as described above and determines that no portion of the work should be suspended, he will notify the Design-Builder in writing of his determination. If the Design-Builder does not agree with the Engineer's determination, the provisions of Subarticle 104-8(C) shall be strictly adhered to. Within 14

calendar days after the last day of the alleged-suspension, the Design-Builder shall submit his claim to the Engineer in writing. Such claim shall set forth the reasons and support for such adjustment in compensation, including cost records, and any other supporting justification in accordance with Subarticle 104-8(C).

(C) Conditions:

No adjustment in compensation will be allowed under Subarticles 104-4(A) and 104-4(B) for any reason whatsoever for each occurrence of idle equipment and/or idle labor which has a duration of twenty-four hours or less.

No adjustment in compensation will be allowed under Subarticles 104-4(A) and 104-4(B) to the extent that performance would have been suspended by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

No adjustment in compensation will be allowed under Subarticles 104-4(A) and 104-4(B) for any effects caused on unchanged work. No adjustment in compensation will be allowed under Subarticles 104-4(A) and 104-4(B) except for idle equipment and/or idle labor resulting solely from the suspension of work in writing by the Engineer.

No adjustment in compensation will be allowed under Subarticles 104-4(A) and 104-4(B) where temporary suspensions of the work have been ordered by the Engineer in accordance with Article 108-7 and the temporary suspensions are a result of the fault or negligence of the Design-Builder.

104-7 EXTRA WORK.

The Design-Builder shall perform extra work whenever it is deemed necessary or desirable to complete fully the work as contemplated. Extra work shall be performed in accordance with the specifications and as directed by the Engineer. No extra work shall be commenced prior to specific authorization for the performance of such extra work being given by the Engineer.

Extra work which is specifically authorized by the Engineer will be paid for in accordance with Subarticle 104-8(A).

When the Design-Builder is required to perform work which is in his opinion extra work, he shall notify the Engineer in writing prior to performing such work. The Engineer will investigate and, based upon his determination, one of the following will occur.

1. If the Engineer determines that the affected work is extra work, the Design-Builder will be notified in writing by the Engineer and compensation will be made in accordance with Subarticle 104-8(A).
2. If the Engineer determines that the work is not extra work, he will notify the Design-Builder in writing of his determination. If the Design-Builder upon receipt of the Engineer's written determination intends to file a claim for additional compensation by reason of such work, he shall notify the Engineer in writing of such intent prior to beginning any of the alleged extra work and the provisions of Subarticle 104-8(B) shall be strictly adhered to.

104-8 COMPENSATION AND RECORD KEEPING.

(A) Compensation--Article 104-3 and Article 104-7:

When the Engineer and Design-Builder agree that compensation is due under the provisions of Articles 104-3 or 104-7, payment will be made in accordance with one of the following:

1. When the Engineer and the Design-Builder agree to the prices to be paid, the agreement will be set forth in a supplemental agreement. If the estimated total cost of the affected work is equal to or less than \$15,000.00 and the prices for performing the work have been mutually agreed to, the Design-Builder may begin work before executing the supplemental agreement. If the estimated total cost of the affected work is more than \$15,000.00; the Design-Builder shall not begin the affected work until the supplemental agreement is executed.
2. When the Engineer and the Design-Builder cannot agree to the prices to be paid for the affected work, the Engineer will issue a force account notice prior to the Design-Builder beginning work. In this instance the affected work shall be performed as directed by the Engineer and paid for in accordance with the provisions of Article 109-3.

(B) Claim for Additional Compensation--Article 104-3 and Article 104-7:

The Design-Builder's notice of intent to file a claim for additional compensation under the provisions of Articles 104-3 and 104-7 shall be given to the Engineer in writing. The Design-Builder shall keep accurate and detailed cost records in accordance with the provisions of Article 109-3. The Design-Builder's cost records and supporting data shall be complete in every respect and in such form that the Engineer may check them. The Design-Builder's cost records and supporting data shall clearly indicate the cost of performing the work in dispute and shall separate the cost of any work for which payment has been made. The Design-Builder's cost records shall be kept up to date and the Engineer shall be given the opportunity to review the methods by which the records are being maintained. The cost records shall be prepared on a weekly basis for each occurrence for which notice of intent to file a claim has been given and submitted to the Engineer within 7 days after the end of a given weekly period.

If the Design-Builder chooses to pursue the claim after the disputed work is complete, he shall submit a written claim to the Engineer for an adjustment in compensation based upon his cost records within 120 calendar days after completion of the disputed work. This claim shall summarize previously submitted cost records and clearly describe the Design-Builder's justification for an adjustment in compensation under the terms of the contract.

Upon receipt, the Engineer will review the Design-Builder's request and supporting documentation.

If the Engineer determines that the work covered by the claim is in fact compensable under the terms of the contract, an adjustment in compensation will be made based upon the documentation presented and his engineering judgment. The adjustment will be made on the next partial pay estimate and reflected on the final estimate. The compensation allowed shall be limited to the amount that would be paid if the work were performed in accordance with Article 109-3.

If the Engineer determines that the work covered by the claim is not compensable under the terms of the contract, the claim will be denied.

The Engineer will notify the Design-Builder of his determination whether or not an adjustment of the contract is warranted within 120 calendar days after receipt of the complete request, all necessary supporting justification, and cost records.

The failure on the part of the Design-Builder to perform any of the following shall be a bar to recovery under the provisions of Articles 104-3 or 104-7:

1. The failure of the Design-Builder to notify the Engineer in writing prior to performing the work in dispute that he intends to file a claim.
2. The failure of the Design-Builder to keep records in accordance with the provisions of Article 109-3.
3. The failure of the Design-Builder to give the Engineer the opportunity to monitor the methods by which records are being maintained.
4. The failure of the Design-Builder to submit additional documentation requested by the Engineer provided documentation requested is available within the Design-Builder's records.
5. The failure of the Design-Builder to submit cost records on a weekly basis.
6. The failure of the Design-Builder to submit the written request for an adjustment in compensation with cost records and supporting information within 120 calendar days of completion of the affected work.

(C) Compensation--Article 104-4:

The Design-Builder's notice of intent to file a claim for additional compensation under the provisions of Subarticle 104-4(A) shall be given to the Engineer in writing within 7 days after the Engineer suspends the performance of the work. For an alleged suspension, the Design-Builder's notice of intent to file a claim for additional compensation under the provisions of Subarticle 104-4(B) shall be given to the Engineer in writing. The Design-Builder shall keep accurate and detailed records of the equipment and labor alleged to be idle. The Design-Builder's cost records, supporting data, and supporting information shall be complete in every respect and in such form that the Engineer may check them. The Design-Builder's cost records, supporting data, and supporting information for equipment idled due to the suspension or alleged suspension shall specifically identify each individual piece of equipment, its involvement in the work, its location on the project, the requested rental rate and justification as to why the equipment cannot be absorbed into unaffected work on the project during the period of suspension or alleged suspension. The Design-Builder's cost records, supporting data, and supporting information for idle labor shall include the specific employees, classification, dates and time idled, hourly rate of pay, their involvement in the project, and justification as to why they cannot be absorbed into the unaffected work on the project or other projects during the period of suspension or alleged suspension. The Design-Builder's cost records, supporting data, and supporting information shall be kept up-to-date and the Engineer shall be given the opportunity to review the methods by which the records, data, and information are being maintained. The cost records, supporting data, and supporting information shall be prepared on a weekly basis for each occurrence for which notice of intent to file a claim has been given and submitted to the Engineer within 7 days after the end of a given weekly period.

If the Design-Builder choose to pursue the claim after the suspension or alleged suspension period has ended, he shall submit a written claim to the Engineer for an adjustment in compensation based upon his cost records due to idle equipment and/or idle labor within 14 calendar days or receipt of the notice to resume work or within 14 calendar days of expiration of the alleged suspension period. This request shall summarize previously submitted cost records and clearly describe the Design-Builder's justification for an adjustment in compensation under the terms of the contract.

Upon receipt, the Engineer will evaluate the Design-Builder's request. If the Engineer agrees that the cost of the work directly associated with the suspension or alleged suspension has increased as a result of such suspension or alleged suspension and the suspension or alleged suspension was caused by conditions beyond the control of and not the fault of the Design-Builder, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment, excluding profit, and modify the contract in writing accordingly. The Design-Builder will be paid for the verified actual cost of the idle equipment and idle labor. The compensation allowed shall be limited to the equipment, labor, bond, insurance, and tax costs, excluding profits, computed in accordance with Article 109-3.

If the Engineer determines that the suspensions of the work by the Engineer or alleged suspensions do not warrant an adjustment in compensation, he will notify the Design-Builder in writing of his determination.

The Engineer will notify the Design-Builder of his determination of whether or not an adjustment in compensation is warranted within 120 calendar days after receipt of the complete request, all necessary supporting justification, and cost records.

The failure on the part of the Design-Builder to perform any of the following shall be a bar to recovery under the provisions of Article 104-4:

1. The failure to notify the Engineer in writing within 7 days after the Engineer suspends in writing the performance of all or any portion of the work.
2. The failure to notify the Engineer in writing that he intends to file a claim by reason of alleged suspension.
3. The failure of the Design-Builder to keep records in accordance with the details of Article 109-3.
4. The failure of the Design-Builder to give the Engineer the opportunity to monitor the methods by which records are being maintained.
5. The failure of the Design-Builder to submit additional documentation requested by the Engineer provided documentation requested is available within the Design-Builder's records.
6. The failure of the Design-Builder to submit cost records on a weekly basis.
7. The failure of the Design-Builder to submit the written request for an adjustment in compensation with cost records, supporting data, and supporting information within 14 calendar days of receipt of the notice to resume work.
8. The failure of the Design-Builder to submit the written request for an adjustment in compensation with cost records, supporting data, and supporting information within 14 calendar days after the last day of the period during which the Design-Builder contends he

has been prevented from performing all or any portion of the work for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) because of conditions beyond the control of and not the fault of the Design-Builder, its suppliers, or subcontractors at any approved tier, and not caused by weather.

(D) Notification of Determination:

The failure on the part of the Engineer to notify the Design-Builder of his determination on the requested adjustment in compensation within 120 calendar days after receipt of the complete request, all supporting justification, and cost records will result in payment of interest on any monies determined to be due from the requested adjustment in compensation. Interest, at the average rate earned by the State Treasurer on the investment within the State's Short Term Fixed Income Investment Fund during the month preceding the date interest becomes payable, will be paid the Design-Builder on the next partial pay estimate and reflected on the final estimate for the period beginning on the 121st day after receipt of the complete request, all supporting justification, and cost records, and extending to the date the Engineer makes his determination on the disputed work.

If the Design-Builder fails to receive such adjustment in compensation for the disputed work as he claims to be entitled to under the terms of the contract, the Design-Builder may resubmit the written request for an adjustment in compensation to the Engineer as a part of the final claim after the project is complete. The Design-Builder will only be allowed to submit the request for an adjustment in compensation one time during the construction of the project.

104-9 DISPOSITION OF SURPLUS PROPERTY.

All property that is surplus to the needs of the project will remain or become the property of the Design-Builder, unless otherwise stated in the plans or special provisions, with the following exceptions:

1. Materials which are the property of utility companies providing service to buildings which are to be demolished or removed in accordance with Sections 210 and 215.
2. Materials resulting from the removal of existing pavement in accordance with Section 250 which are to be stockpiled for the use of the Department.
3. Materials resulting from the removal of existing structures in accordance with Section 402 where the plans or special provisions indicate that the material will remain the property of the Department.
4. Aggregate base course where the Special Provisions require that this material become the property of the Department.
5. Left over materials for which the Department has reimbursed the Design-Builder as provided in Article 109-6.
6. Materials that have been furnished by the Department for use on the project.

Property shall include but not be limited to materials furnished by the Design-Builder or the Department for either temporary or permanent use on the project, salvaged materials which were

part of the existing facility on the date of availability for the project, and all implements, machinery, equipment, tools, supplies, laboratories, field offices, and watercraft which are necessary for the satisfactory completion of the project.

All property of the Design-Builder shall be removed from the project by the Design-Builder prior to final acceptance.

104-10 MAINTENANCE OF THE PROJECT.

The Design-Builder shall maintain the project from the date of beginning construction until the project is finally accepted. This maintenance shall be continuous and effective and shall be prosecuted with adequate equipment and forces to the end that all work covered by the contract is kept in satisfactory and acceptable condition at all times.

The Design-Builder shall maintain all existing drainage facilities, except where the work consists of resurfacing only, such that they are in the same condition upon acceptance of the project as they were when the project was made available.

In the event that the Design-Builder's work is suspended for any reason, he shall maintain the work covered by the contract, as provided herein.

When a portion of the project is accepted as provided in Article 105-17, immediately after such acceptance the Design-Builder will not be required to maintain the accepted portions. Should latent defects be discovered or become evident in an accepted portion of the project, such defective work shall be repaired or replaced at no cost to the Department.

Where an observation period(s) is required that extends beyond the final acceptance date, the Design-Builder shall perform any work required by the observation period until satisfactory completion of the observation period. The Design-Builder will not be directly compensated for any maintenance operations necessary, as this work will be considered incidental to the work covered by the various contract items.

104-11 FINAL CLEANING UP.

Before acceptance of the work for maintenance, the highway, borrow sources, waste areas, and all ground occupied by the Design-Builder within the project limits in connection with the work shall be cleaned of all rubbish, excess materials, temporary structures, and equipment; and all parts of the work shall be left in an acceptable condition.

The Design-Builder will not be directly compensated for the work of final cleaning up, as this work will be considered incidental to the work covered by the various contract items.

104-12 VALUE ENGINEERING PROPOSAL

This value engineering specification is to provide an incentive to the Design-Builder to initiate, develop, and present to the Department of Transportation for consideration, any cost reduction proposals conceived by him involving changes in the drawings, designs, specifications, or other requirements of the contract. This specification does not apply unless the proposal submitted is specifically identified by the Design-Builder as being presented for consideration as a Value Engineering Proposal. Submittals that propose material substitutions of permanent features such as changes from rigid to flexible or flexible to rigid pavements, concrete to steel or steel to concrete bridges will not be considered acceptable Value Engineering Proposals. Depending on complexity of evaluation and implementation, Value Engineering Proposals that

provide for total savings prior to distribution of less than the thousand dollars (\$10,000.00) will not generally be considered.

Value Engineering Proposals contemplated are those that would result in a net savings to the Department by providing a decrease in the total cost of construction or reduce the construction time without increasing the cost to construct the project. The effects the Proposal may have on the following items, but not limited to these items, will be considered by the Department when evaluating the proposal:

- | | |
|-------------------------|--------------------------|
| 1) Service Life | 6) Desired Aesthetics |
| 2) Safety | 7) Design |
| 3) Reliability | 8) Standardized Features |
| 4) Economy of Operation | 9) Environmental Impact |
| 5) Ease of Maintenance | |

The Department reserves the right to reject the Proposal or deduct from the savings identified in the Proposal to compensate for any adverse effects to these items which may result from implementation of the Proposal.

The Department reserves the right to reject at its discretion any Value Engineering Proposal submitted which would require additional right of way. Substitution of another design alternate, which is detailed in the design-build package, for the one on which the Design-Builder proposed, will not be allowed. Plan errors which are identified by the Design-Builder and which result in a cost reduction will not qualify for submittal as a Value Engineering Proposal. Pending execution of a formal supplemental agreement, implementing an approved Value Engineering Proposal, the Design-Builder shall remain obligated to perform in accordance with the terms of the existing contract. No time extension will be granted due to the time required to review a Value Engineering Proposal.

The Design-Builder is encouraged to include this specification in contracts with subcontractors. The Design-Builder shall encourage submissions of Value Engineering Proposals from subcontractors, however, it is not mandatory that the Design-Builder accept or transmit to the Department Value Engineering Proposals proposed by his subcontractors. The Design-Builder may choose any arrangement for the subcontractor value engineering payments, provided that these payments shall not reduce the Department's share of the savings resulting from the Value Engineering Proposal.

Should the Design-Builder desire a preliminary review of a possible Value Engineering Proposal, prior to expending considerable time and expense in full development, a copy of the preliminary proposal shall be submitted to the Resident Engineer and the Value Engineering Office. The submittal shall state, Preliminary Value Engineering Proposal Review Request and must contain sufficient drawings, cost estimates and written information that can be clearly understood and interpreted. Also include the identity of any Private Engineering Firms proposed by the Design-Builder to prepare designs or revisions to designs. The Department will review the preliminary submittal only to the extent necessary to determine if it has possible merit as a Value Engineering Proposal. This review does not obligate the Department to approve the final proposal should a preliminary review indicate the proposal has possible merit. The Department is under no obligation to consider any Value Engineering Proposal (Preliminary or Final) that is submitted.

A copy of the Final Value Engineering Proposal shall be submitted by the Design-Builder to the Resident Engineer and the Value Engineering Office. The proposal shall contain, as a minimum, the following:

- (1) A statement that the request for the modification is being made as a Value Engineering Proposal.
- (2) A description of the difference between the existing contract requirements and the proposed modifications, with the comparative advantages and disadvantages of each.
- (3) If applicable, a complete drawing of the details covering the proposed modifications and supporting design computations shall be included in the final submittal. The preparation of new designs or drawings shall be accomplished and sealed by a Professional Engineer registered in the State of North Carolina. Further, the Department may require a review, and possibly the redesign, be accomplished by the project's original designer, or an approved equal. The Department may contract with private engineering firms, when needed, for reviews requested by the Department. The contractor shall contract with the original project designer, or an approved equal, when required by the Department, for any design work needed to completely and accurately prepare contract drawings. The Department may waive the requirements to have the preparation of contract drawings accomplished by a Professional Engineer or the project's original design based on the extent, detail, and complexity of the design needed to implement the value engineering proposal.
- (4) An itemized list of the contract requirements that would be modified and a recommendation of how to make each modification.
- (5) A detailed estimate of the cost of performing the work under the proposed modification.
- (6) A statement of the time by which approval of the Value Engineering Proposal must be issued by the Department to obtain the total estimate cost reduction during the remainder of the contract, noting any effect on the contract completion or delivery schedule.

To facilitate the preparation of revisions to contract drawings, the contractor may purchase reproducible copies of drawings for his use through the Department's Value Engineering Office. The preparation of new design drawings by or for the Design-Builder shall be coordinated with appropriate Department Branch through the Value Engineering Office. The contractor shall provide, at no charge to the Department, one set of reproducible drawings of the approved design needed to implement the value engineering proposal.

The Engineer, as defined in Article 101-34 of the Standard Specifications, will be the sole judge of the acceptability of a Value Engineering Proposal requested in accordance with these provisions and of the estimated net savings resulting from the approval of all or any part of the Proposal. The Design-Builder has the right to withdraw, in whole or in part, any Value Engineering Proposal not accepted by the Department within the period to be specified in the Proposal per Item (6) of the preceding paragraph.

If a Value Engineering Proposal is approved, the necessary changes will be effected by Supplemental Agreement. Included as a part of the Supplemental Agreement will be provisions for price adjustment giving the Design-Builder 50 percent of the net savings to the project resulting from the modifications.

The Department reserves the right to include in the Supplemental Agreement any conditions it deems appropriate for consideration, approval, and implementation of the proposal. Acceptance of the Supplemental Agreement by the Design-Builder shall constitute acceptance of such conditions.

The final net savings to be distributed will be the difference in cost between the existing contract cost for the involved unit bid items and actual final cost occurring as a result of the modification. Only those unit bid items directly affected by the Supplemental Agreement will be considered in making the final determination of net savings. In determining the estimate net savings, the Department reserves the right to disregard the contract prices if, in the judgement of the Department, such prices do not represent a fair measure of the value of the work to be performed or to be deleted. Subsequent change documents affecting the modified unit bid items but not related to the Value Engineering Proposal will be excluded from such determination. The Department's review and administrative costs for value engineering proposals will be borne by the Department. The Design-Builder's costs for designs and/or revisions to designs and the preparation of design drawings will be borne by the Design-Builder. The costs to either party will not be considered in determining the net savings obtained by implementing the value engineering proposal. The Design-Builder's portion of the net savings shall constitute full compensation to him for effecting all changes pursuant to the agreement. The net savings will be prorated, 50 percent for the Design-Builder and 50 percent for the Department, for all accepted Value Engineering Proposals.

Upon execution of the Supplemental Agreement, the Department will thereafter have the right to use, duplicate or disclose in whole or in part any data necessary for utilization of the modification on other projects without obligation or compensation of any kind to the Design-Builder. Restrictions or conditions imposed by the Design-Builder for use of the proposal on other projects shall not be valid.

Except as may be otherwise precluded by this specification, the Design-Builder may submit a previously approved value engineering proposal on another project.

Unless and until a Supplemental Agreement is executed and issued by the Department, the Design-Builder shall remain obligated to perform the work in accordance with the terms of the existing contract.

Acceptance of the modification and its implementation will not modify the completion date of the contract unless specifically provided for in the Supplemental Agreement.

The Design-Builder shall not be entitled to additional compensation under Section 104 of the Standard Specifications for alterations in the plans or in the details of construction pursuant to the Value Engineering Proposal.

The Department will not be liable to the Design-Builder for failure to accept or act upon any Value Engineering Proposal submitted pursuant to this provision nor for any delays to the work attributable to any such proposal.

The Department reserves the right to negotiate desired changes with the Design-Builder under the provisions of the contract even though the changes are the result of a Value Engineering Proposal submitted on another contract. In this instance the savings will be prorated in accordance with the terms of the negotiated agreement.

SECTION 105

CONTROL OF WORK

105-1 AUTHORITY OF THE ENGINEER.

The Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions which may arise as to the interpretation of the contract; and all questions as to the acceptable fulfillment of the contract on the part of the Design-Builder. His decision shall be final and he shall have executive authority to enforce and make effective such decisions and orders as the Design-Builder fails to carry out promptly.

The Engineer shall have the authority to issue any written order to the Design-Builder which he considers necessary to the prosecution of the work, and shall have executive authority to enforce such written orders as the Design-Builder fails to carry out promptly. Failure on the part of the Design-Builder to comply with any written order issued by the Engineer may be justification for disqualifying the Design-Builder from further bidding in accordance with Article 102-16.

105-2 PLANS AND WORKING DRAWINGS.

See Scope of Work:

105-3 CONFORMITY WITH PLANS AND SPECIFICATIONS.

All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the plans, or indicated in the specifications.

In the event the Engineer finds the materials or the finished product in which the materials are used not within reasonably close conformity with the plans and specifications but that reasonably acceptable work has been produced, he will then make a determination if the work is to be accepted and remain in place. If the Engineer determines that the work is to be accepted, he will have the authority to make such adjustment in contract price as he deems warranted based upon his engineering judgment and the final estimate will be paid accordingly.

In the event the Engineer finds the materials or the finished product in which the materials are used or the work performed are not in reasonably close conformity with the plans and specifications and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected by the contractor at no cost to the Department.

The Design-Builder shall bear all the costs of providing the burden of proof that the nonconforming work is reasonable and adequately addresses the design purpose. The Design-Builder shall bear all risk for continuing with nonconforming work in question until it is accepted.

The Engineer may impose conditions for acceptance of the nonconforming work. The Design-Builder shall bear all costs for fulfilling the conditions.

The decisions whether the product satisfies the design purpose, whether the nonconforming work is reasonably acceptable, and the conditions for acceptance are within the sole discretion of the Engineer.

105-4 COORDINATION OF PLANS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS.

The Design-Build Package, the Plans, the Standard Specifications, and all supplementary documents are essential parts of the contract and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work.

In case of discrepancy or conflict, the order in which they govern shall be as follows:

- (A) Design-Build Package
- (B) Technical Proposal
- (C) Accepted Construction Plans
- (D) Standard Drawings
- (E) Standard Specifications

Where dimensions on the plans are given or can be computed from other given dimensions they shall govern over scaled dimensions.

The Design-Builder shall take no advantage of any error or omission in the plans, estimated quantities, or specifications. In the event the Design-Builder discovers an error or omission, he shall immediately notify the Engineer.

105-5 COOPERATION BY DESIGN-BUILDER.

The Design-Builder shall cooperate with the Engineer, his inspectors, and other contractors in every way possible, and shall give the work the constant attention necessary to facilitate the progress and satisfactory performance thereof. The Design-Builder shall notify the Engineer in writing at least 7 days prior to beginning work on the project. He shall notify the Engineer at least 1 day in advance when work is to be suspended and at least 2 days in advance when work is to be resumed.

The Design-Builder shall keep available on the project site at all times the contract assembly including special provisions, standard specifications, and plans.

105-6 SUPERVISION BY DESIGN-BUILDER.

(A) On Site Personnel:

At all times that work is actually being performed the Design-Builder shall have present on the project one competent individual who has been authorized to act in a supervisory capacity over all work on the project including work subcontracted. The individual who has been so authorized shall be experienced in the type of work being performed and is to be fully capable of

managing, directing, and coordinating the work; of reading and thoroughly understanding the contract; and of receiving and carrying out directions from the Engineer or his authorized representatives. He shall be an employee of the Design-Builder, unless otherwise approved by the Engineer.

(B) On Call Personnel:

At all times during the life of the project the Design-Builder shall provide one permanent employee who shall have the authority and capability for the overall responsibility of the project and who shall be personally available at the site of work within 24 hours notice. Such employee shall be fully authorized to conduct all business with the Subcontractors, to negotiate and execute all supplemental agreements, and to execute the orders or directions of the Engineer.

(C) Exceptions:

If the Design-Builder elects to have the employee described under (B) above constantly available in person on the project, then the presence of this employee will be considered as also meeting the requirements of (A) above. However, whenever such employee is absent from the project then an authorized individual meeting the requirements of (A) above shall be present on the project.

105-7 COOPERATION BETWEEN CONTRACTORS OR DESIGN-BUILDERS.

The Department reserves the right at any time to contract for and perform other or additional work on or near the work covered by the contract.

When separate or additional contracts are let within the limits of any one project, each Contractor or Design-Builder shall conduct his work so as not to interfere with or hinder the progress or completion of the work being performed by other Contractors or Design-Builders. Contractors or Design-Builders working within the limits of the same project shall cooperate with each other.

Each Contractor or Design-Builder shall conduct his operations in such a manner as to avoid damaging any work being performed by others or which has been completed by others.

The Department will under no circumstances be liable for any claim for additional compensation due to acts of one Contractor or Design-Builder holding up the work of another.

The Department will under no circumstances be liable for any damages experienced by one Contractor or Design-Builder as a result of the presence and operations of other Contractors or Design-Builders working within the limits of the same project.

105-8 COOPERATION WITH UTILITY OWNERS

Prior to the beginning of construction, the Department or Design-Builder will notify all utility owners known to have facilities affected by the construction of the project and will make arrangements for the necessary adjustments of all affected public or private utility facilities. The utility adjustments may be made either before or after the beginning of construction of the project. The adjustments will be made by the utility owner or his representative, or by the Design-Builder when such adjustments are part of the work covered by his contract.

The Design-Builder shall use special care in working around and near all existing utilities that are encountered during construction, protecting them where necessary so that they will give uninterrupted service.

The Design-Builder shall cooperate with the utility owner, and/or the owner's representative in the adjustment or placement of utility facilities when such adjustment or placement is made necessary by the construction of the project or has been authorized by the Department.

In the event that utility services are interrupted by the Design-Builder, the Design-Builder shall promptly notify the owners and shall cooperate with the owners and/or the owner's representative in the restoration of service in the shortest time possible.

Existing fire hydrants shall be kept accessible to fire departments at all times.

The Design-Builder shall make his own determination as to the nature and extent of the utility facilities, including proposed adjustments, new facilities, or temporary work to be performed by the utility owner or his representative; and as to whether or not any utility work is planned by the owner in conjunction with the project construction. The Design-Builder shall consider all of the permanent and temporary utility facilities in their present or relocated positions. It will be the Design-Builder's responsibility to anticipate any additional costs to him resulting from such utility work and to reflect these costs in his bid for the various items in the contract.

Where changes to utility facilities are to be made solely for the convenience of the Design-Builder, it shall be the Design-Builder's responsibility to arrange for such changes and the Design-Builder shall bear all costs of such changes.

105-9 CONSTRUCTION STAKES, LINES, AND GRADES.

The Design-Builder shall be responsible for any surveying, construction staking and layout required in the performance of the work. He will be responsible for the accuracy of lines, slopes, grades and other engineering work which he provides under this contract. Unless otherwise specified in the Request for Proposal, no measurement or direct payment will be made for this work. The cost shall be considered as included in other contract items.

105-10 AUTHORITY AND DUTIES OF THE INSPECTOR.

Inspectors employed by the Department are authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. The inspector is not authorized to alter or waive the provisions of the contract. The inspector is not authorized to issue instructions contrary to the plans and specifications, or to act as foreman for the Contractor; however, he has the authority to reject work or materials until any questions at issue can be referred to and decided by the Engineer. The inspector is not authorized to make any final acceptance of the work.

105-11 INSPECTION OF WORK.

All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Design-Builder shall allow and provide a reasonable access to all parts of the work to the Engineer or his authorized representative. The Design-Builder shall also furnish

such information and assistance as is required to make a complete and detailed inspection. Such access shall meet the approval of the Engineer.

The presence of the Engineer at the work site shall in no way lessen the Design-Builder's responsibility for conformity with the plans and specifications. Should the Engineer, prior to or during construction, fail to point out or reject materials or work that does not conform with plans and specifications, whether from lack of discovery or for any other reason, it shall in no way prevent later rejection or corrections to the unsatisfactory materials or work when discovered. The Design-Builder shall have no claim for losses suffered due to any necessary removals or repairs resulting from the unsatisfactory work.

If the Engineer requests it, the Design-Builder, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Design-Builder shall restore said portions of the work to the standard required by the specifications. The Design-Builder shall keep cost records of the work performed and if the uncovered work is found to be acceptable, the Department will pay the Design-Builder on a force account basis in accordance with Article 109-3 for the cost of uncovering, or removing, and the replacing of the covering or making good of the parts removed; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed, shall be at no cost to the Department.

When any other unit of government or political subdivision is to pay a portion of the cost of the work covered by the contract, its respective representatives shall have the right to inspect the work. When work is to be performed on the right of way of any railroad corporation or in proximity to other public utilities, the representatives of the railroad corporation and/or the public utilities shall have the right to inspect the work. Such inspection shall in no sense make any unit of government or political subdivision or any railroad corporation or public utility a party to the contract, and shall in no way interfere with the rights of either party thereunder.

105-12 UNAUTHORIZED WORK.

No work shall be performed without established lines and grades except as otherwise permitted by the Engineer. Work performed contrary to the instructions of the Engineer or contrary to any approvals granted by the Engineer will be considered as unauthorized and will not be paid for under the provisions of the contract. Work performed beyond the lines shown on the plans or as given, except as herein specified, or any extra work performed without authority will be considered as unauthorized and will not be paid for under the provisions of the contract. Any of the above work so performed may be ordered removed, replaced, or repaired at no cost to the Department.

Upon failure on the part of the Design-Builder to comply forthwith with any order of the Engineer made under the provisions of this article, the Engineer will have the authority to cause such unauthorized work to be removed and/or adjusted to conform to the provisions of the contract and to deduct the cost of removal and/or adjustment from any monies due or to become due the Design-Builder.

105-13 LIMITATIONS OF OPERATIONS.

At any time when, in the opinion of the Engineer, the Design-Builder has obstructed, closed, or is conducting operations on, a greater portion of the work than is necessary for the prosecution of the work so as to constitute a hazard to the general public or impair the function of the facility being constructed where traffic must be maintained, the Engineer may require the Design-Builder to finish the portions on which work is in progress before starting work on additional portions of the work.

105-14 NIGHT WORK.

Whenever the Design-Builder's operations are being conducted at night, the Design-Builder shall provide such artificial lighting as may be necessary to provide for safe and proper construction and to provide for adequate inspection of the work as described in Section 1412.

105-15 RESTRICTION OF LOAD LIMITS.

The Design-Builder shall comply with all legal load restrictions in hauling equipment and materials on roads under the jurisdiction of the Department.

The Department has the right to place load limit restrictions on the load a Design-Builder may haul on any road or bridge in the vicinity of his contract. The Design-Builder, prior to bidding on a project, will be responsible for making his own investigations to determine beforehand the possibility of load limit restrictions being placed on any of the highways he plans to use for hauling purposes. The Design-Builder shall not be entitled to an extension of time or to compensation for any costs, inconvenience, delay, or any other adversity to the Design-Builder as the result of any reduction by the Department in load limit, or as the result of a refusal by the Department to raise load limits as hereinafter provided or under any other conditions, and any such reduction in load limit or refusal to raise load limits shall not constitute a basis for a claim for additional compensation.

Wherever load limit restrictions below the statutory legal load limit have been posted on any roads and/or bridges on the project or within the vicinity of the project, the Department may remove the load limit restrictions from such roads and/or bridges upon written request from the Design-Builder; and the Design-Builder thereafter will be allowed to haul up to the statutory legal limits over such roads and/or bridges, provided the Design-Builder enters into an agreement with the Department providing for:

1. Maintenance by the Design-Builder of such roads in a condition satisfactory to the Engineer during the haul period.
2. Repair by the Design-Builder of all damages to such roads after haul is completed to place them in a condition as good as they were prior to removal of the load limits.
3. Furnishing bond by the Design-Builder in an amount determined by the Engineer for the roads. Furnishing a bond for the roads does not entitle the Design-Builder to exceed the posted load limits of any bridge.
4. Assumption by the Design-Builder of all costs of strengthening any bridges which may be necessary in order to safely haul loads up to statutory legal limits. The Department will,

upon request by the Design-Builder, make a determination as to the method and extent of strengthening required for the bridges and will advise the Design-Builder as to the amount of work to be done or an estimate of the charges for the work if performed by Department forces. When Department forces perform the work, the Design-Builder shall reimburse the Department in the amount of the actual charges for said work. When Design-Builder's forces perform the work, it shall be done in accordance with plans approved by the engineer and under his inspection.

5. Indemnification of the Department against any and all claims from third persons arising out of or resulting from the hauling operation or the maintenance, or lack of maintenance, of haul roads. Haul roads shall be maintained not only for the Design-Builder's hauling operations, but for the use of the general public.

Equipment operated on proposed bridges shall comply with the following load restrictions.

Maximum axle load (lbs.)	36,000
Maximum axle load on tandem axles (lbs.)	30,000
Maximum gross load (lbs.).....	90,000

The Design-Builder shall keep the bridge floor clean to reduce impact forces and place approved temporary guides on the bridge floor to position the wheel loads as nearly as possible over the bridge girders. Only one earth moving vehicle shall be on a bridge at any time. Upon completion of hauling over each bridge, the Design-Builder shall clean the bridge floor, curbs and rails.

Regulations pertaining to size and weight will not apply to equipment used on the project provided the vehicles involved are not operated on pavement, completed base course, or structures.

105-16 FAILURE TO MAINTAIN THE PROJECT OR PERFORM EROSION CONTROL WORK.

Failure on the part of the Design-Builder to comply with the provisions of Article 104-10 or to perform erosion control work as directed will result in the Engineer notifying the Design-Builder to comply with these provisions. In the event that the Design-Builder fails to begin such remedial action or fails to begin erosion control work within 24 hours after receipt of such notice with adequate forces and equipment, the Engineer may proceed to have the work performed with other forces. No payment will be made to the Design-Builder for work performed by others. Any costs incurred by the Department for work performed by others as provided above in excess of the costs that would have been incurred had the work been performed by the Design-Builder will be deducted from monies due the Design-Builder on his contract.

105-17 INSPECTION AND ACCEPTANCE.

Upon apparent completion of the entire project, the Engineer will make an inspection of the project for final acceptance. If all construction provided for and contemplated by the contract is found to be satisfactorily completed, the project will be accepted. The acceptance of projects in their entirety will not be altered except as listed below:

1. When any continuous project is equal to or in excess of 5 miles in length, the Department will accept the project in 2 increments with the first increment equaling at least 50 percent of the total length of the project.
2. When it is considered to be in the best interest of the Department, other increments or parts of projects may be considered for acceptance.
3. When the contract contains an intermediate completion date requiring the completion of a portion of the work in its entirety, such portion of the work may be accepted if requested in writing by the Design-Builder.
4. Bridge decks and rails that have been constructed or rehabilitated at such time as they are open to public traffic.
5. Permanent sign panels, including hardware and retroreflective sheeting, that are required prior to the final acceptance of the project by the Traffic Control Plans or by the Engineer when the roadway where the signs are located is open to public traffic.

Acceptance of any increment or part of a project shall not operate to waive the assessment of all or any portion of liquidated damages assessable under the terms of the contract.

When the inspection discloses any work, in whole or in part, as being unsatisfactory or incomplete, the Engineer will advise the Design-Builder of such unsatisfactory or incomplete work, and the Design-Builder shall immediately correct, repair, or complete such work. The project will not be accepted and the Design-Builder shall be responsible for the maintenance of the project and maintenance of traffic until all of the recommendations made at the time of the inspection have been satisfactorily completed.

The Engineer will notify the Design-Builder in writing that the project has been accepted as soon as practicable after the completion of the project.

105-18 SUBSTANTIAL COMPLETION

When the special provisions provide for a reduction in the rate of liquidated damages for the contract time or an intermediate contract time after the work is substantially complete, the work will be considered substantially complete when the following requirements are satisfied:

1. Through traffic has been placed along the project or along the work required by an intermediate contract time and the work is complete to the extent specified below, and all lanes and shoulders are open such that traffic can move unimpeded at the posted speed. Intersecting roads and service roads are complete to the extent that they provide the safe and convenient use of the facility by the public.
2. The final layers of pavement for all lanes and shoulders along the project or along the work required by an intermediate contract time are complete.
3. All signs are complete and accepted except for the signs on intersecting roadways.
4. All guardrails, drainage devices, ditches, excavation and embankment are complete.

5. Remaining work along the project consists of permanent pavement markings, permanent pavement markers or incidental construction that is away from the paved portion of the roadway.

Upon apparent substantial completion of the entire project or the work required by an intermediate contract time, the Engineer will make an inspection of the work. If the inspection discloses the entire project or the work required by an intermediate contract time is substantially complete, the Engineer will notify the Design-Builder in writing that the work is substantially complete. If the inspection discloses the entire project or the work required by an intermediate contract time is not substantially complete, the Engineer will notify the Design-Builder in writing of the work that is not substantially complete. The entire project or the work required by an intermediate contract time will not be considered substantially complete until all of the recommendations made at the time of the inspection have been satisfactorily completed.

SECTION 106 CONTROL OF MATERIAL

106-1 GENERAL REQUIREMENTS.

The materials used on the work shall meet all requirements of the contract and shall be subject to inspection, test, or rejection by the Engineer at any time. Materials used in the work shall be new or recycled as permitted by the Specifications.

It is the Departments intent to expand the use of recovered materials in its construction programs. The Design-Builder is encouraged to find innovative and alternative ways for beneficial use of recyclable materials that are currently a part of the solid waste stream and that contribute to problems of declining space in landfills.

The Design-Builder shall make his own determination of the various kinds and quantities of materials that are necessary for the acceptable performance and timely completion of the work. It will be the Design-Builder's responsibility to obtain materials which will meet the requirements of the contract. The Design-Builder shall be responsible for the acceptability of all materials used in the work and for the timely delivery of materials to the project so that adequate time will be available for the safe and proper performance of the work.

The Design-Builder shall provide access, means, and assistance in the verification of all testing equipment, scales, measures, and other devices operated by him in connection with the testing of the materials.

If the Design-Builder desires or is required to furnish materials from local deposits, other than those, if any, described in the contract he shall assume full responsibility for the sampling of the sources and the acceptability of the material in accordance with these specifications. He shall furnish without charge such preliminary samples as may be required; except that, if requested in writing, the Engineer may allow Department forces to take samples as requested by the Design-Builder. In the latter case, the Design-Builder shall reimburse the Department for the total expense of the sampling as determined by the Engineer. Tests will be made and reports rendered, but it is understood that such tests shall in no way be construed as a guarantee of acceptance of any material which may be delivered later for incorporation in the work. The Design-Builder shall assume full responsibility for the production of uniform and satisfactory materials from such local deposits, and shall indemnify and save harmless the Department from any and all claims for loss or damages resulting from the opening and operation thereof, or from the failure of the deposit after development to produce materials acceptable to the Engineer, in either quality or quantity.

106-2 SAMPLES, TESTS, AND CITED SPECIFICATIONS.

The Design-Builder shall perform Quality Control (QC) and acceptance testing at the frequencies described in the Minimum Sampling Guide. Quality Assurance (QA), verification and Independent Assurance (IA) will be performed by the Department. Laboratory testing performed by the Design-Builder shall be performed by an AASHTO Accredited facility and participate in the AMRL/CCRL proficiency testing program for the tests being performed. Technicians performing sampling and testing shall be qualified in accordance with the

Department's training and certification requirements for the specific materials, or in accordance with AMRL/CCRL accreditation requirements.

Prior to beginning construction, the Design-Builder shall provide a "Table of Values" as described in Section 101-102 Definitions of Terms.

All tests will be made in accordance with the most recent standard or interim methods of the AASHTO in force on the date of advertisement. Should no AASHTO method of test exist for a material, the most recent standard or tentative method of ASTM or other methods adopted by the Department will be used.

All reference made to a specification published by AASHTO, ASTM, or any other organization other than the Department, which does not indicate the date of publication, will be understood to mean the specification current on the date of Request for Proposals for the project. When a more current specification is published during the life of the project, and when it is mutually agreed by the Design-Builder and the Engineer and such agreement is documented by a supplemental agreement, the Department may accept materials meeting the requirements of the latest publication.

106-3 DESIGN-BUILDER FURNISHED CERTIFICATION.

The Design-Builder shall maintain material certifications obtained from the producer, supplier, or an approved independent testing laboratory for the following types of materials, unless otherwise directed by the Engineer

1. Materials required to meet criteria documented by tests which are normally performed during the production process.
2. Materials which are required to meet specifications other than those published by AASHTO, ASTM, or the Division of Highways.
3. Materials produced at locations which are not within routine travel distance for Department representatives.
4. Materials required to meet criteria documented by tests involving special equipment not readily available to Department representatives.
5. Any other special material when so directed by the Engineer.

Material certifications of one of the following types shall be furnished for pre-tested materials. The specific type of material certification for each material shall be in accordance with the Department's Minimum Sampling Guide.

Type 1 Certified Mill Test Report:

A certified mill test report shall be a certified report of tests conducted by the manufacturer on samples taken from the same heat or lot number as the material actually shipped to the project. The report shall identify the heat or lot number.

Type 2 Typical Certified Mill Test Report:

A typical certified mill test report shall be a certified report of tests conducted by the manufacturer on samples taken from a lot which is typical of the material actually shipped to the project, but which may or may not be from the lot shipped.

Type 3 Manufacturer's Certification:

A manufacturer's certification shall be a certified statement that the material actually shipped to the project was manufactured by production processes which are periodically and routinely inspected to assure conformance to specification requirements.

Type 4 Certified Test Reports:

A certified test report shall be a certified report of test conducted by an approved independent testing laboratory on samples taken from same heat or lot number as the material actually shipped to the project. The report shall identify the heat or lot number.

Type 5 Typical Certified Test Reports:

A certified test report shall be a certified report of tests conducted by an approved independent testing laboratory on samples taken from a lot which is typical of the material actually shipped to the project, but which may or may not be from the lot shipped.

Type 6 Supplier's Certification:

A supplier's certification is a signed statement by the supplier that the material described in the certification is of the specification grade required and that the supplier has on hand Type 1, Type 2, or Type 3 material certifications to cover the material which is included in the Type 6 supplier's certification.

Type 7 Design-Builder's Certification:

Design-Builder's certification is a signed statement by a contractor that the used material described in the certification meets the requirements of the current specifications to the best of contractor's knowledge and that the contractor had in his possession at the time of purchase a Type 1, 2 or 3 materials certification to cover the material which is included in the Type 7 contractor's certification.

Final Material Certificate:

The Design-Builder shall, upon completion of the project, certify that all certifications were received and the materials were found in compliance with the specification requirements and list all exceptions to the plans and specifications. This certification shall be in the following format:

“This is to certify that the results of the tests on Acceptance and QC/QA samples indicate that the materials incorporated in the construction work and the construction operations controlled by sampling and testing, were in conformity with the approved plans and specifications. Such results compare favorably with the results of the independent assurance sampling and testing. Exceptions to the plans and specifications are noted below:”

Upon final acceptance of the Project, the Design-Builder shall submit all certifications to the Engineer.

106-4 DELIVERY AND HANDLING OF MATERIALS.

All materials shall be handled carefully and in such manner as to preserve their quality and fitness for the work. Materials damaged during delivery or handling shall not be used without approval of the Engineer.

106-5 STORAGE OF MATERIALS.

Materials shall be stored so as to insure the preservation of their quality and fitness for the work. Stored materials, which may have been approved before storage, shall be subject to inspection at any time, and shall meet the requirements of the specifications at the time they are put into use. Stored materials shall be so located as to facilitate their inspection. Subject to the approval of the Engineer, that portion of the right of way not required for public travel may be used for storage purposes and for the Design-Builder's plant and equipment, but any additional space required therefor shall be provided by the Design-Builder at no expense to the Department. All storage sites located within the right of way shall be restored to their original condition by the Design-Builder at no expense to the Department, except where the materials stored are or are to become the property of the Department.

106-6 INSPECTION AT SOURCE.

The Engineer may undertake the inspection of materials at the source of supply. This inspection will be performed by Department personnel or private organizations retained by the Department. Where approved by the Engineer, the results of tests performed by private laboratories or producer's or manufacturer's laboratories may be used in determining compliance of a material or product with the contract.

The Department assumes no obligation to inspect materials at the source of supply and such inspection will be undertaken only upon condition that:

1. The cooperation and assistance of the Design-Builder and the producer with whom he has contracted for materials is assured.
2. The representative of the Engineer will have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials.
3. Laboratory facilities shall be provided when required by the Engineer.

Where the Department agrees to inspect or test materials during their production or at the source of supply, the Design-Builder shall bear the cost of testing performed on materials ordered by him but not incorporated into the project. For items normally pretested by the Department, the Design-Builder shall provide a minimum of 30 days notice prior to the beginning of production of the items for this project along with final approved shop drawings.

The Department reserves the right to retest all materials which have been tested and accepted at the source of supply after the same have been delivered, and to reject all materials which, when retested, do not meet the requirements of the specifications.

106-7 SCALES AND PUBLIC WEIGHMASTER.

This article is deleted for this project.

106-8 DEPARTMENT FURNISHED MATERIAL.

The Design-Builder shall furnish all materials necessary to complete the work, except those materials specified in the Design-Build Package to be furnished by the Department. Payment at the contract price for the item which includes the use of Department furnished material will be full compensation for all costs of handling and placing such materials after they are delivered or made available to the Design-Builder.

The Design-Builder will be held responsible for all material furnished him, and deductions will be made from any money due him to make good any shortage and deficiencies from any cause whatsoever and for any damage which may occur after Department furnished material has been made available.

106-9 DEFECTIVE MATERIAL

All materials which are not in reasonably close conformity to the requirements of the specifications shall be considered as defective and such materials, whether in place or not, shall be rejected and are to be removed from the site of the work unless otherwise permitted by the Engineer in accordance with Article 105-3. No rejected material, the defects of which may have been substantially corrected, may be used until approval has been given by the Engineer.

106-10 DENSITY DETERMINATION BY NUCLEAR METHODS.

The Engineer may, at his option, utilize nuclear methods as described in Article 520-10 and 610-11C to determine the density of selected pavement materials. The use of nuclear methods will include the establishment of the required density through the use of control strips constructed from materials actually being used on the project, and the determination of the density being obtained in test sections located throughout the project.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY
TO PUBLIC

107-1 LAWS TO BE OBSERVED.

The Design-Builder shall keep himself fully informed of all Federal and State laws, all local laws, ordinances, and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority which may in any manner affect those engaged or employed in the work, or which in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall indemnify and hold harmless the Board of Transportation and the Department of Transportation and their agents and employees from any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, by the Design-Builder or by his agents and employees.

107-2 ASSIGNMENT OF CLAIMS VOID.

In accordance with G.S. 143-3.3, the Department will not recognize any assignment of claims by any Design-Builder.

107-3 PERMITS AND LICENSES.

The Design-Builder shall procure all permits and licenses except as otherwise specified; pay all charges, fees, and taxes; and give all notices necessary and incident to the due and lawful prosecution of the work.

107-4 PATENTED DEVICES, MATERIALS, AND PROCESSES.

If the Design-Builder employs any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. The Design-Builder and his surety shall indemnify and save harmless the Department from any and all claims for infringement by reason of the use of such patented design, device, material, process, trademark, or copyright, and shall indemnify and save harmless the Department from any costs, expenses, and damages which it may be obligated to pay at any time during the prosecution or after the completion of the work by reason of any infringement.

107-5 ENCROACHMENT ON RIGHT OF WAY.

Any individual, firm, or corporation wishing to encroach on highway right of way shall secure a written permit from the Department. The Design-Builder is not authorized to allow any individual, firm, or corporation to perform any work within the limits of the project unless such work has been authorized in writing by the Engineer.

When so directed by the Engineer, the Design-Builder shall make any repairs necessary due to such encroachments and such work will be paid for as extra work.

107-6 FEDERAL PARTICIPATION.

When the United States Government pays all or any portion of the cost of the work, the Federal laws authorizing such participation and the rules and regulations made pursuant to such

laws shall be observed by the Design-Builder. The work will be subject to the inspection of the representative of such Federal agencies as are created for the administration of these laws. The Design-Builder shall have no right to make the Federal Government a party to any court action solely by reason of its participation in the cost of the work or by reason of its inspection of the work.

107-7 SANITARY PROVISIONS.

The Design-Builder shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements of the State and local Board of Health, or of other bodies or tribunals having jurisdiction.

107-8 PUBLIC CONVENIENCE AND SAFETY.

The Design-Builder shall at all times so conduct his work as to insure the least possible obstruction to traffic. The safety and convenience of the general public and the residents along the highway, and the protection of persons and property, shall be provided for by the Design-Builder as specified in Section 150.

107-9 COORDINATION WITH RAILWAY.

All work to be performed by the Design-Builder on railway right of way shall be done in a manner satisfactory to the railway company, and shall be performed at such times and in such manner as not to unnecessarily interfere with the movement of traffic upon the track of the railway company. The Design-Builder shall use all care and precautions in order to avoid accidents, damage, or unnecessary delays or interference with the railway company's traffic or other property. The Design-Builder shall carry such railroad protective insurance and public liability and property damage insurance as may be stipulated in the special provisions.

When the Design-Builder is required by the plans or special provisions to transport materials or equipment across the tracks of any railway or to perform work on railway right of way, the Design-Builder will obtain any necessary written authority from the railway company for the establishment of a railway crossing or for the performance of work on railway right of way. The Design-Builder will be required to bear the cost of any watchman service or flagging protection necessary due to such operations, as the railway company will be reimbursed directly by the Design-Builder for the cost of such work.

In case the Design-Builder elects or finds it necessary to transport materials or equipment across the tracks of any railway at any point where a crossing is not required by the plans or special provisions, or at any point other than an existing public crossing, he shall obtain specific written authority from the railway company for the establishment of a private railway crossing and shall bear all costs in connection with such crossing, including installation, drainage, maintenance, any necessary insurance, watchman service, flagging protection, and removal of such private railway crossing.

107-10 WORK IN, OVER, OR ADJACENT TO NAVIGABLE WATERS.

All work in or over navigable waters shall be in accordance with conditions contained in the permit obtained by the Department from the authority granting the permit. These conditions will be included in the project special provisions. The work shall be performed in such manner so as

not to interfere with navigation of the waterway unless approval therefor is obtained from the authority granting the permit.

The Design-Builder shall prepare drawings necessary to obtain any addendums which may be required for his operations which are not included in the Department's permit. He shall coordinate their submission with the Engineer.

107-11 USE OF EXPLOSIVES.

When the use of explosives is necessary for the prosecution of the work, the Design-Builder shall exercise the utmost care not to endanger life or property. The Design-Builder shall be responsible for any and all damage or injury to persons or property resulting from the use of explosives. Such responsibility shall include, but shall in no way be limited to all damages arising from all forms of trespass to adjacent property as a result of blasting by the Design-Builder. Provided that in cases of damage or interruption to underground water supply or veins to adjacent landowners, the Design-Builder shall not be held responsible where the Design-Builder has used reasonable care and has taken reasonable precautions to prevent such damage.

All explosives shall be stored in a secure manner, in compliance with all laws, and all such storage places shall be marked clearly "DANGEROUS EXPLOSIVES."

The Design-Builder shall notify each public utility company having facilities in close proximity to the site of the work of his intention to use explosives. This notice shall be given sufficiently in advance to enable the utility companies to take whatever steps they may consider necessary to protect their property from injury. The Design-Builder shall also give the Engineer, all occupants of adjacent property, and all other Contractors working in or near the project notice of his intention to use explosives. Motorists shall be notified in accordance with Article 1101-10.

The Design-Builder shall submit a blasting plan to the Engineer within 24 hours after each shot. The blasting plan shall contain the full details of the drilling and blasting patterns unless otherwise approved by the Engineer, and shall contain the following information: (1) station limits of shot, (2) plan of drill hole pattern, blast hole spacing, blast hole diameters and free face, (3) initiation sequence of blastholes including delay timer and delay system, (4) manufacturers data sheet for all explosives, primers, and initiators employed, (5) loading diagram showing type and amount of explosives, primers, initiators, and location and depth of stemming. The blasting plan submitted is for quality control and record keeping purposes. Review by the Engineer shall not relieve the Design-Builder of his responsibilities as provided in Article 107-12.

107-12 PROTECTION AND RESTORATION OF PROPERTY.

The Design-Builder shall be responsible for the protection from his activities of all public and private property on and adjacent to the work and shall use every reasonable precaution necessary to prevent damage or injury thereto. He shall use suitable precautions to prevent damage to pipes, conduits, and other underground structures, and to poles, wires, cables, and other overhead structures.

The Design-Builder shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer has witnessed or otherwise referenced their location and shall not remove them until directed.

The Design-Builder shall be responsible for the removal, preservation, and resetting of all mail boxes disturbed by the construction operations. The mail boxes and their supports, when reset, shall be left in as good a condition as they were before removal. The Design-Builder will not be required to furnish new material except as required to repair damage resulting from construction operations.

The Design-Builder will be held responsible for all damage or injury to property of any character resulting from any act, omission, negligence, or misconduct in the prosecution of the work. When any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, negligence, or misconduct in the execution of the work, he shall either restore at his own expense such property to a condition similar or equal to that existing before such damage or injury was done, or shall make good such damage or injury in a manner acceptable to the owner of the damaged property and to the Department. In case of failure on the part of the Design-Builder to restore such property or make good such damage or injury the Department may at the Design-Builder's expense repair, rebuild, or otherwise restore such property in such manner as the Engineer may consider necessary.

107-13 CONTROL OF EROSION, SILTATION, AND POLLUTION.

(A) General:

The Design-Builder shall take whatever measures are necessary to minimize soil erosion and siltation, water pollution, and air pollution caused by his operations. The Design-Builder shall also comply with the applicable regulations of all legally constituted authorities relating to pollution prevention and control. The Design-Builder shall keep himself fully informed of all such regulations which in any way affect the conduct of the work, and shall at all times observe and comply with all such regulations. In the event of conflict between such regulations and the requirements of the specifications, the more restrictive requirements shall apply.

The Engineer will limit the area over which clearing and grubbing, excavation, borrow, and embankment operations are performed whenever the Design-Builder's operations do not make effective use of construction practices and temporary measures which will minimize erosion, or whenever construction operations have not been coordinated to effectively minimize erosion, or whenever permanent erosion control features are not being completed as soon as permitted by construction operations.

Following completion of any construction phase or operation, on any area greater than one acre, the Design-Builder shall provide ground cover sufficient to restrain erosion within 30 calendar days. When the construction is within a high quality water zone, as indicated in the plans, ground cover sufficient to restrain erosion shall be provided within 15 calendar days. The ground cover shall be either temporary or permanent and the type specified in the special provisions.

(B) Erosion and Siltation Control:

The Design-Builder shall exercise every reasonable precaution throughout the life of the project to prevent the eroding of soil and the silting of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces, or other property.

Prior to suspension of operations on the project or any portion thereof, the Design-Builder shall take all necessary measures to protect the construction area, including but not limited to

borrow sources, soil type base course sources, and waste areas, from erosion during the period of suspension.

Excavated materials shall not be deposited, nor shall earth dikes or other temporary earth structures be constructed, in rivers, streams, or impoundments. As an exception to the above, confined earth materials will be permitted when approved in writing by the Engineer. .

(C) Coordination of Erosion Control Operations:

Temporary and permanent erosion control measures shall be provided as shown on the plans or as directed by the Engineer. All permanent erosion control work shall be incorporated into the project at the earliest practicable time. Temporary erosion control measures shall be coordinated with permanent erosion control measures and all other work on the project to assure economical, effective, and continuous erosion control throughout the construction and post construction period and to minimize siltation of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces, or other property.

Temporary erosion control measures shall include but not be limited to the use of temporary berms, dikes, dams, drainage ditches, silt basins, silt ditches, slope drains, structures, vegetation, mulches, mats, netting, gravel, or any other methods or devices that are necessary. Temporary erosion control measures may include work outside the right of way or construction limits where such work is necessary as a result of construction such as borrow operations, haul roads, plant sites, equipment storage sites, and disposal of waste or debris. The Design-Builder shall be liable for all damages to public or private property caused by silting or slides originating in waste areas furnished by the Design-Builder.

Materials for temporary erosion control measures shall have been approved by the Engineer before being used or shall be as directed by the Engineer.

Erosion control measures installed by the Design-Builder shall be acceptably maintained by the Design-Builder.

(D) Water and Air Pollution:

The Design-Builder shall exercise every reasonable precaution throughout the life of the project to prevent pollution of rivers, streams, and water impoundments. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful waste shall not be discharged into or alongside of rivers, streams, or impoundments, or into natural or manmade channels leading thereto.

The Design-Builder shall comply with all State or local air pollution regulations throughout the life of the project.

(E) Dust Control:

The Design-Builder shall control dust throughout the life of the project within the project area and at all other areas affected by the construction of the project, including, but not specifically limited to, unpaved secondary roads, haul roads, access roads, disposal sites, borrow and material sources, and production sites. Dust control shall not be considered effective where the amount of dust creates a potential or actual unsafe condition, public nuisance, or condition endangering the value, utility, or appearance of any property.

The Design-Builder will not be directly compensated for any dust control measures necessary, as this work will be considered incidental to the work covered by the various contract items.

(F) Application of Specifications:

The provisions of this article shall apply to all construction operations. Further references and detailed requirements concerning erosion, siltation, and pollution prevention and control are given in other sections of the specifications as supplements to the general requirements of this article.

(G)Sanctions:

In the event that temporary erosion and pollution control measures become necessary due to the Design-Builder's negligence, carelessness, or failure to incorporate permanent erosion control measures into the project at the earliest practicable time, such measures shall be performed by the Design-Builder as directed by the Engineer at no cost to the Department. If the Design-Builder fails to perform such measures as directed, the Engineer may have the work performed in accordance with Article 105-16.

Failure of the Design-Builder to fulfill any of the requirements of this article may result in the Engineer ordering the stopping of construction operations in accordance with Article 108-7 until such failure has been corrected. Such suspension of operations will not justify an extension of contract time.

Failure on the part of the Design-Builder to perform the necessary measures to control erosion, siltation, and pollution will result in the Engineer notifying the Design-Builder to take such measures. In the event that the Design-Builder fails to perform such measures within 24 hours after receipt of such notice with adequate forces and equipment, the Engineer may suspend the work as provided above, or may proceed to have such measures performed with other forces and equipment, or both. No payment will be made to the Design-Builder for the performance of this work and the cost of such work so performed will be deducted from monies due the Design-Builder on his contract.

107-14 PROTECTION OF PUBLIC LANDS.

In the execution of any work within or adjacent to any State or National forest, park, or other public lands, the Design-Builder shall comply with all regulations of all authorities having jurisdiction over such forest, park, or lands, governing the protection of public lands and the carrying out of work within public lands, and shall observe all sanitary laws and regulations with respect to the performance of work in public lands. He shall keep the areas in an orderly condition, dispose of all refuse, and obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, latrines, cesspools, septic tanks, and other structures in accordance with the requirements of the appropriate authorities.

The Design-Builder shall take all reasonable precaution to prevent and suppress forest fires and shall require his employees and subcontractors, both independently and at the request of forest officials, to do all reasonable within their power to prevent and suppress and to assist in preventing and suppressing forest fires and to make every possible effort to notify a forest official at the earliest possible moment of the location and extent of any fire seen by them.

The Design-Builder shall obtain any construction permits which may be required for his operations, which are not a part of the project, in accordance with the requirements of the regulations of the appropriate authorities.

107-15 RESPONSIBILITY FOR DAMAGE CLAIMS.

The Design-Builder shall indemnify and save harmless the Board of Transportation and its members and the Department of Transportation and its officers, agents, and employees from all suits, actions, or claims of any character brought for any injury or damages received or sustained by any person, persons, or property by reason of any act of the Design-Builder, Subcontractor, its agents or employees, in the performance of the contract. The Design-Builder's liability to save harmless and indemnify shall include, but not by way of limitation, the following: (1) damages or claims for the failure of the Design-Builder to safeguard the work; (2) damages or claims by reason of the failure of the Design-Builder to erect adequate barricades and post adequate warnings to the public of such barricades; (3) any damage or claims caused through the Design-Builder's use of defective materials or by the performance of defective work; (4) any claims by reason of the Design-Builder's infringement of patent, trademark, or copyright; (5) any amounts paid by the Department by reason of the Design-Builder's failure to comply with or for violations of laws, ordinances, orders, or decrees; (6) any damages or claims caused by blasting operations of the Design-Builder with or without proof of negligence on the part of the Design-Builder; (7) damages or claims caused by the failure of the Design-Builder to protect private or public property pursuant to Article 107-12, including damages to public and private property caused by silting and slides from waste areas furnished by the Design-Builder, without proof of negligence; (8) damages caused by the failure of the Design-Builder to control erosion in accordance with the plans and specifications.

In addition to any remedy authorized by law, the Department shall have a right to retain from moneys due the Design-Builder as the Department considers necessary until final disposition has been made of the following suits or claims: (1) For all claims against the Department involving claims or damages which are the Design-Builder's responsibility under Section 107 of the specifications. The Design-Builder and the Surety shall remain responsible until such suits or claims against the Department have been settled and until the Department has been indemnified and saved harmless. (2) In case of claims by the third parties against the Design-Builder involving tort liability for which the Department might be held liable for as a taking of property, or as a tort before the Industrial Commission. However, moneys due the Design-Builder will not be retained provided the Design-Builder produces satisfactory evidence to the Department that he is adequately protected from such tort liability by public liability and property damage insurance. In all other cases involving claims or suits by third parties against the Design-Builder, amounts due the Design-Builder will not be withheld provided that the consent of the Surety is furnished and the Surety guarantees payment of any amounts for which the Design-Builder may be determined to be legally liable for. (3) In cases of damage to property of the Department, such amounts necessary to pay for such damage.

In cases where claims are made or suits filed against employees, agents, or officers of the Department of Transportation or members of the Board of Transportation, the Department of Transportation may retain from moneys due the Design-Builder sufficient to indemnify such employee, agent, or officer of the Department of Transportation or member of the Board of Transportation for any amounts which they may be held liable for but for which the Design-

Builder is responsible under the provisions of Section 107 of these specifications. In the event that there is not sufficient money retained or the final estimate is paid, the Department of Transportation may collect from the Design-Builder or its Surety amounts sufficient to indemnify such employee, agent, or officer of the Department of Transportation or member of the Board of Transportation for such damages incurred.

107-16 LIABILITY INSURANCE.

When required by the special provisions the Design-Builder shall carry insurance of the kinds and in the amounts specified therein in addition to any other forms of insurance or bonds required under the terms of the contract, or any other insurance carried by the Design-Builder.

107-17 OPENING SECTIONS OF PROJECT TO TRAFFIC.

If it is determined by the Engineer that the Design-Builder will not complete the work by the completion date, intermediate completion date, or intermediate completion time, the Engineer may notify the Design-Builder in writing that upon expiration of contract time or intermediate contract time the project or any portion thereof will be open to traffic. On such sections which are opened, the Design-Builder shall conduct the remainder of his operations so as to cause the least obstruction to traffic. The Design-Builder shall not be relieved of his liability or responsibility, shall not receive any additional compensation due to the added cost of the work, nor shall he receive any extension of the completion date, intermediate completion date, or intermediate completion time, by reason of such openings.

107-18 DESIGN-BUILDER'S RESPONSIBILITY FOR WORK.

Until final acceptance of the work by the Engineer, as evidenced in writing, the Design-Builder shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from any other cause, whether arising from the execution or from the nonexecution of the work. The Design-Builder shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof, except as provided in other sections of the specifications. The Department will reimburse the Design-Builder for the repair of the work due to actions of the elements of such exceptional nature as to be legally classified as Acts of God.

In case of suspension of work from any cause whatever, the Design-Builder shall be responsible for all materials, and shall properly store them, if necessary, and shall provide suitable drainage of the roadway and erect necessary temporary structures at no cost to the Department.

107-19 FURNISHING RIGHT OF WAY.

The Department will be responsible for the securing of all necessary rights of way in advance of construction.

107-20 PERSONAL LIABILITY OF PUBLIC OFFICIALS.

Employees, agents, officers, and members of the Board of Transportation or the Department of Transportation shall not be held personally liable for any damages connected with the work, it being specifically understood in all such matters that they act solely as agents and representatives of the Board of Transportation or the Department of Transportation.

107-21 WAIVER OF LEGAL RIGHTS BY THE DEPARTMENT.

Upon completion of the work, the Department will expeditiously make an inspection and notify the Design-Builder of acceptance. Such final acceptance and processing of the final estimate, however, shall not preclude or stop the Department from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Department be precluded or stopped from recovering from the Design-Builder or his Surety, or both, such overpayment as it may sustain, or by failure on the part of the Design-Builder to fulfill his obligations under the contract. A waiver on the part of the Department of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Design-Builder, without prejudice to the terms of the contract, shall be liable to the Department for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Department's rights under any warranty or guaranty.

107-22 SAFETY AND ACCIDENT PROTECTION.

The Design-Builder shall comply with all applicable Federal, State, and local laws, ordinances, and regulations governing safety, health, and sanitation, and shall provide all safeguards, safety devices, and protective equipment, and shall take any other needed actions, on his own responsibility that are reasonably necessary to protect the life and health of employees on the job and the safety of the public, and to protect property in connection with the performance of the work covered by the contract.

107-23 WAGES AND CONDITIONS OF EMPLOYMENT.

The Design-Builder's attention is directed to the provisions and requirements of any and all public statutes which regulate hours or conditions of employment on public work. Such provisions and requirements that are appropriate, in accordance with the intent of the particular law, act, or statute, will be applicable to all work performed by the Design-Builder with his own organization and with the assistance of workmen under his immediate superintendence, and to all work performed by subcontract. It will be the responsibility of the Design-Builder to ascertain the appropriate application of such provisions and requirements to the work.

In addition to the general requirements of the various regulations referred to above, certain additional regulations and restrictions may be imposed that are peculiar to the particular work under the contract. In such cases, these regulations and restrictions will be included in the special provisions for the particular project involved.

For projects that are financed wholly or in part with Federal funds, the minimum wage rates to be paid to all mechanics and laborers employed on the project will be determined by the U.S. Secretary of Labor. A schedule of such wage rates will be inserted in the Request for Proposals for such projects. The Design-Builder shall provide at the job site at no cost to the Department a weatherproof bulletin board covered with glass or rigid transparent plastic and shall display thereon at all times legible copies of such schedule of wage rates and of the wage rate information poster that will be furnished to him. The bulletin board shall be located in a conspicuous place easily accessible to all employees.

In the event that changes should occur in any of the regulations referred to in this article, or in any application thereof to the work under contract, no additional compensation will be allowed the Design-Builder as a result of such changes.

107-24 LIABILITY TO THIRD PARTIES.

It is not intended by any of the provisions of any part of these specifications to make the public or any member thereof a third party beneficiary hereunder, or to authorize anyone who is not a party to a contract entered into pursuant to these specifications to maintain a suit for personal injury or property damage otherwise than as authorized and provided by law.

107-25 RIGHT OF THE DESIGN-BUILDER TO FILE VERIFIED CLAIM.

If the Design-Builder fails to receive such settlement as he claims to be entitled to under the terms and provisions of the contract, the Design-Builder may submit a written and verified claim for such amounts he deems himself or his subcontractor(s) entitled to under the terms and provisions of the contract provided he has complied with the applicable provisions of the contract including, but not limited to, giving written notice of intent to file a claim, keeping and submission of cost records, and the initial submission of a written claim within the specified time period. The claim shall be submitted to the State Highway Administrator within 60 days from the time the Design-Builder receives the final estimate as defined by Article 101-38 and shall be submitted in accordance with G.S. 136-29.

107-26 HAZARDOUS, CONTAMINATED, AND/OR TOXIC MATERIAL.

When the Design-Builder's operations encounter or expose any abnormal condition which may indicate the presence of a hazardous, contaminated, and/or toxic material, such operations shall be discontinued in the vicinity of the abnormal condition and the Engineer shall be notified immediately. Upon notification by the Design-Builder, the Engineer will investigate the work and, if necessary, suspend the work in accordance with Article 108-7. The presence of barrels; old or abandoned underground storage tanks; and discolored earth, metal, wood, etc.; visible fumes; abnormal odors; excessively hot earth; smoke; or anything else which appears abnormal may be indicators of hazardous, contaminated, and/or toxic materials and shall be treated with extraordinary caution as they are evidence of abnormal conditions.

The Design-Builder's operations shall not resume until so directed by the Engineer.

Disposition of the hazardous, contaminated, and/or toxic material will be made in accordance with the requirements and regulations of the Department of Human Resources and the Department of Environment, Health & Natural Resources. Where the Design-Builder performs work necessary to dispose of hazardous, contaminated, and/or toxic material, payment will be made at the unit prices for pay items included in the contract which are applicable to such work or, where the contract does not include such pay items, payment will be made as provided in Article 104-7 for extra work. Where the contract does not include pay items for the work necessary to dispose of hazardous, contaminated, and/or toxic material, the Engineer may have the work performed by others.

SECTION 108

PROSECUTION AND PROGRESS

108-1 GENERAL.

It is the intent of these specifications that the Design-Builder shall commence work on the date of availability shown in the Request for Proposals or as soon thereafter as practicable, but not before the contract has been executed by both the Design-Builder and the Department. The Design-Builder shall not begin work prior to the date of availability without written approval of the Engineer. If such approval is given and the Design-Builder does begin work prior to the date of availability the Department will assume no responsibility for any delays caused prior to the date of availability by any reason whatsoever, and such delays, if any, will not constitute a valid reason for extending the completion date.

It is further the intent of these specifications that the Design-Builder shall pursue the work diligently with workmen in sufficient numbers, abilities, and supervision, and with equipment, materials, and methods of construction as may be required to complete the work described in the contract, or as may be amended, by the completion date.

108-2 PROGRESS SCHEDULE.

This section is replaced by the Project Special Provision entitled " PROGRESS SCHEDULE" contained elsewhere in this Design-Build Package.

108-3 PREDESIGN CONFERENCE / PRECONSTRUCTION CONFERENCE.

The selected Design-Builder shall meet with the Engineer for a predesign conference concerning the design phase of the work. This conference shall be held prior to the commencement of work, as it is determined according to Article 108-1, and will be scheduled by the Engineer. At the predesign conference, the Design-Builder shall furnish authorized signature forms and a list of any proposed subcontractors and major material suppliers associated with the design of the project.

A preconstruction conference shall be held at least 10 working days before construction activity begins. This second conference, concerning the construction phase, shall also be scheduled by the Engineer. The Design Builder shall give the Engineer a minimum of 45 days notice before he plans to begin construction activities. This will allow the Engineer time for any environmental agency representatives involved in the permitting process, as well as any other pertinent entities, to be scheduled to attend the preconstruction conference. If the Design-Builder is responsible for utilities in accordance with Article 105-8, he shall be responsible for coordinating with the Engineer in scheduling their attendance and for notifying them. The Design-Builder shall also be responsible for coordinating with the Engineer in scheduling the attendance of subcontractors and others deemed appropriate, and for notifying them.

At the preconstruction conference, a list of any proposed subcontractors and major material suppliers associated with the construction of the project will be submitted.

If the contract has a DBE requirement, the Design-Builder shall submit copies of completed and signed DBE subcontracts, purchase orders, or invoices to the Department.

The Design-Builder shall submit a traffic control plan in accordance with Article 1101-5. The Design-Builder shall designate an employee who is competent and experienced in traffic control to implement and monitor the traffic control plan. The qualifications of the designated employee must be satisfactory to the Engineer.

The Design-Builder shall submit a safety plan and designate an employee as Safety Supervisor.

Both plans shall be submitted at the preconstruction conference and must be satisfactory to the Engineer. Should the design plan include activities that would place personnel on the work site, traffic control and safety plans for those activities would be submitted at the predesign conference.

During the preconstruction conference, the Engineer will designate a Department employee or employees who will be responsible to see that the traffic control plans and any alterations thereto are implemented and monitored to the end that traffic is carried through the work in an effective manner. If approved by the Engineer, the Design-Builder may designate one employee to be responsible for both the traffic control and safety plans. The Design-Builder shall not designate its superintendent as the responsible person for either the traffic control plan or the safety plan, unless approved by the Engineer.

If the project requires that Design-Builder or State personnel work from falsework, within shoring, or in any other hazardous area the Design-Builder shall submit, as part of the Design-Builder's safety plan, specific measures it will use to ensure worker safety.

The Design-Builder shall also submit a program for erosion control and pollution prevention on all projects involving clearing and grubbing, earthwork, structural work, or other construction, when such work is likely to create erosion or pollution problems.

If the Design-Builder fails to provide the required submissions, the Engineer may order the preconstruction conference suspended until such time as they are furnished. Work shall not begin until the preconstruction conference has been concluded and the safety plan has been approved, unless authorized by the Engineer. The Design-Builder shall not be entitled to additional compensation or an extension of contract time resulting from any delays due to such a suspension.

The Design-Builder shall designate a qualified employee as Quality Control Manager. The Quality Control Manager shall be responsible for the implementing and monitoring of the quality control requirements of the project.

108-4 CONSTRUCTION CONFERENCES.

After work on the project has begun, construction conferences are to be held no less than once per month. The construction conferences are to be scheduled at times which are mutually

agreeable to both the Design-Builder and the Department. It shall be the Design-Builder's responsibility to attend and record the proceedings of these conferences.

108-5 CHARACTER OF WORKMEN, METHODS, AND EQUIPMENT.

The Design-Builder shall at all times employ sufficient labor and equipment for prosecuting the several classes of work to full completion in the manner and time required by these specifications.

“The Design-Builder cannot recruit Department employees for employment. Additionally, Department employees who elect to become employed by a Design-Builder may not perform any function on a project which they have been involved in during employment with the Department without written consent of the State. Any person employed by the Design-Builder and assigned to a project who has previously been involved in the project as a Department employee shall be, at the written direction of the Engineer, removed from the project. An exception to these terms may be granted when recommended by the Secretary and approved by the Board of Transportation.

Failure of the Design-Builder to comply may be justification for disqualifying the Design-Builder from further bidding in accordance with the provisions of Article 102-16 and shall be grounds for termination of this contract.

No person shall be employed by the Design-Builder or by any Subcontractor who has been determined by the Engineer to have engaged in fraudulent activities in connection with any work for the Department of Transportation.

Any person employed by the Design-Builder or by any Subcontractor who, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is disrespectful, intemperate, or disorderly or who has been determined by the Engineer to have engaged in fraudulent activities in connection with any work for the Department of Transportation shall be, at the written request of the Engineer, removed forthwith by the Design-Builder or Subcontractor employing such person, and shall not be employed again in any portion of the work without the approval of the Engineer.

Should the Design-Builder fail to remove such person or persons as required above, the Engineer may suspend the work in accordance with the provisions of Article 108-7 until such orders are complied with.

All equipment which is proposed to be used on the work is to be of sufficient size and in such mechanical condition as to meet the requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other highways will result from its use. The Engineer may order in writing the removal and replacement of any unsatisfactory equipment.

When the methods and equipment to be used by the Design-Builder in accomplishing the construction are not prescribed in the contract, the Design-Builder is free to use any methods or equipment that he demonstrates to the satisfaction of the Engineer will accomplish the contract work in conformity with the requirements of the contract.

When the contract specifies that the construction be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the

Engineer. If the Design-Builder desires to use a method or type of equipment other than those specified in the contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given it will be on the condition that the Design-Builder will be fully responsible for producing construction work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet contract requirements, the Design-Builder shall discontinue the use of the substitute method or equipment and shall complete the remaining construction with the specified methods and equipment. The Design-Builder shall remove the unsatisfactory work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved nor in the completion date as a result of authorizing a change in methods or equipment under these provisions.

108-6 SUBLETTING OF CONTRACT.

The Design-Builder shall not sublet, sell, transfer, assign, or otherwise dispose of the contract or any portion thereof; or of his right, title, or interest therein; without written consent of the Engineer. In case such consent is given, the sublet work shall be performed by the Subcontractor unless otherwise approved in writing by the Engineer. Failure of the Design-Builder to comply with these provisions will be just cause for the work to be considered unauthorized in accordance with Article 105-12. A firm which has been disqualified due to its failure to maintain satisfactory progress under the provisions of Article 108-8 will not be approved as a subcontractor until the firm demonstrates the ability to perform the work in a satisfactory manner. When directed by the Engineer, the Design-Builder shall submit a certified copy of the actual subcontract agreement executed between the Design-Builder and Subcontractor prior to written consent being issued by the Engineer. In case such consent is given, the Design-Builder will be permitted to sublet a portion thereof, but shall perform with his own organization, work amounting to not less than 30 percent of the total original contract amount, except:

1. Any items sublet to Disadvantaged Business Enterprise (DBE), Minority Business (MB) or Women's Business (WB), up to the value of the contract DBE, MB or WB goal, will be deducted from the total original contract amount before computing the amount of work required to be performed by the Design-Builder with his own organization.

Extra work performed in accordance with Article 104-7 will not be considered in the computation of work required to be performed by the Design-Builder.

An assignment by operations of law or assignment for the benefit of creditors, or the bankruptcy of the Design-Builder, shall not vest any right in this contract in the Trustee in bankruptcy, the Design-Builder's creditors, or the agent of the creditors.

A Subcontractor shall not sublet, sell, transfer, assign, or otherwise dispose of his contract with a Design-Builder or any portion thereof; or of his right, title, or interest therein; without written consent of the Engineer. When directed by the Engineer, the Design-Builder shall submit a certified copy of the actual subcontract agreement executed between the Subcontractor and the Second Tier Subcontractor. In the event of an assignment by operations of law or the bankruptcy

of the Subcontractor, the Design-Builder shall have the right, power, and authority, in its discretion, without violating the contract or releasing the Surety, to terminate the subcontract. An assignment by operations of law or assignment for the benefit of creditors or the bankruptcy of the Subcontractor shall not vest any right in this contract in the Trustee in bankruptcy, nor the Subcontractor's creditors or agents of the creditors.

Neither the Design-Builder, nor any Subcontractor, shall enter into any written or oral equipment lease or rental agreement, materials purchase agreement, and/or labor agreement which circumvents the provisions of this article.

If the Design-Builder or a Subcontractor enters into a lease or rental agreement for equipment based upon payment for a unit of work, such agreement will be considered subletting of the contract unless the lease or rental agreement is with a commercial equipment company, manufacturer, and/or commercial leasing agency and such firm has been approved by the Engineer. An equipment lease or rental agreement which is based upon unit prices per unit of time will not be considered subletting of the contract.

The approval of any subcontract will not release the Design-Builder of his liability under the contract and bonds, nor will the Subcontractor or the second tier Subcontractor have any claim against the Department of Transportation by reason of the approval of the subcontract. The State Highway Administrator will review and consider Subcontractor claims for additional time or compensation provided such claims are submitted by the contractor in accordance with Article 107-25 and General Statute 136-29.

Failure of the Design-Builder to comply with any of the provisions of this article may be justification for disqualifying the Design-Builder from further bidding in accordance with the provisions of Article 102-16.

108-7 TEMPORARY SUSPENSION OF THE WORK.

The Engineer will have the authority to suspend the work wholly or in part by written order for such periods as he may deem necessary for any of the following reasons:

1. Conditions considered unfavorable for the suitable prosecution of the work, or
2. The Design-Builder's failure to correct conditions unsafe for workmen or the general public, or
3. The Design-Builder has not carried out orders given to him by the Engineer, or
4. The Design-Builder's failure to perform any provisions of the contract.

No extension of the completion date will be allowed for the above suspensions except as may be provided for in Article 108-10.

108-8 FAILURE TO MAINTAIN SATISFACTORY PROGRESS.

The Engineer will check the Design-Builder's progress at the time each partial pay request is received. The Design-Builder's progress may be considered as unsatisfactory if, according to the CPM of Record, the projected finish date for all work exceeds the scheduled finish date by greater than 10%.

When the Design-Builder's progress is found to be unsatisfactory as described above, the Engineer may make written demand of the Design-Builder to state in writing the reason for the

unsatisfactory progress and produce such supporting data as the Engineer may require or the Design-Builder may desire to submit. The Engineer will consider the justifications submitted by the Design-Builder and extensions of the completion date that have or may be allowed in accordance with Article 108-10(B).

When the Design-Builder cannot satisfactorily justify the unsatisfactory progress the Engineer may invoke one or more of the following sanctions:

1. Withhold anticipated liquidated damages from amounts currently due or which become due.
2. Remove the Design-Builder and all firms prequalified under the Design-Builder's Prequalification Number from the Department's list of qualified bidders.

When any of the above sanctions have been invoked, they shall remain in effect until rescinded by the Engineer.

108-9 DEFAULT OF CONTRACT.

(A) Declaration of Default:

The Department shall have the right to declare a default of the contract for breach by the Design-Builder of any material term or condition of the contract or specifications. Material breach by the Design-Builder shall include, but specifically shall not be limited to failure to begin work under the contract within the time specified; failure to provide workmen, equipment, or materials adequate to perform the work in conformity with the plans and specifications by the completion date; unsatisfactory performance of the work; refusal or failure to replace defective work; failure to maintain satisfactory work progress; failure to comply with equal employment opportunity contract requirements; insolvency or bankruptcy, or any act of insolvency or bankruptcy; failure to satisfy any final judgment within 10 days after entry thereof; and making an assignment for benefit of creditors.

(B) Sanctions:

In the event of a breach of the contract by the Design-Builder, the Department shall have the right, power, and authority, in its sole discretion, without violating the contract or releasing the surety: to assume full control of the prosecution of the contract in the place and stead of the Design-Builder in directing Design-Builder's agents, employees, and Subcontractors in the performance of the work and in utilizing all materials, tools, machinery, equipment, and structures located on the project; to perform the work or any part thereof with Department personnel and equipment or to utilize any or all materials and equipment located on the project that are suitable and acceptable; to relet the work upon such terms and conditions as the Department shall deem appropriate; to employ any other methods that it may determine are required for completion of the contract in an acceptable manner; and to withhold any sums due the Design-Builder under the contract without penalty or interest until the work is completed and accepted by the Department.

(C) Notice:

Before invoking any of the sanctions provided for herein, the Department, acting through the Engineer, will give the Design-Builder at least 7 days written notice with a copy to the Surety, which will set forth the breach of contract involved and the sanctions to be imposed. The Department, in its discretion, may grant the Design-Builder time in excess of 7 days within which to comply with the contract terms and specifications, and the time allowed will be set forth in writing. If the Department determines during such period that the Design-Builder is not proceeding satisfactorily to compliance, it may impose the sanctions after 24 hours notice to the Design-Builder. If the Department determines that the Design-Builder is not in compliance at the end of the time allowed, it may immediately impose any of the sanctions set forth herein and will advise the Design-Builder, in writing, with a copy to the Surety of the sanctions imposed.

(D) Payment:

After declaration of default has been made final, the Design-Builder will be entitled to receive payment for work satisfactorily completed or portions of work satisfactorily completed, less any sums that may be due the Department from the Design-Builder but in no event shall payment exceed the contract unit or lump sum price for such work. The Department, at its election, may retain the sum due the Design-Builder, or any portion thereof, without interest or penalty, until the contract work is completed; or it may make payment to the Design-Builder upon declaration of default for work satisfactorily completed to the date that notice of default is received by the Design-Builder. The Design-Builder may be required by the Engineer, however, to carry to a stage of completion satisfactory to the Engineer any work in progress, the value of which otherwise would be lost by immediate cessation of work. Payment for such work will be made upon the basis hereinafter set out.

In the event that the Design-Builder's employees, equipment, or materials are used in prosecution of the work, or any part thereof, after default is declared, payment to the Design-Builder may be by contract unit or lump sum prices for the work performed, or, if the Engineer determines that such prices do not represent the value of the work performed, payment for the type of work or services performed will be made on a force account basis, as set forth in Article 109-3, less any sums that may be due the Department; but in no event shall payment exceed the contract unit or lump sum price for such work or services. Determination of the method of payment shall be in the sole discretion of the Engineer, and he will advise the Design-Builder, in writing, of his determination with reference to the specific type of work or service to be performed.

If all costs and expenses incurred by the Department arising out of the breach and imposition of sanctions, together with the total cost to the Department of securing the performance of the work set forth in the contract, exceed the sum that would have been payable under the contract, the Design-Builder and the Surety shall be liable to the Department for such excess and shall pay such amount to the Department.

(E) Authority of Engineer:

The Engineer will exercise the powers and discretion vested in him by the specifications and other contract conditions in carrying out the terms of this article. He will have full power and

authority to carry out any orders, directives, or resolutions issued by the Department in connection with a declaration of default. In the event that the Department fails to specify the sanctions to be imposed, the notice to be given, or the method of completing the work, the Engineer, may, in his discretion, impose such sanctions, give such notice, and select such methods of completing the work, as are authorized by this article; and such actions shall have the same effect and validity as if taken pursuant to an express order, directive, or resolution of the Department.

(F) Obligation of Design-Builder and Surety:

No term or terms of this article and no action taken pursuant hereto by the Department of Transportation, its agents, or employees, will be construed to release or discharge the Design-Builder or the Surety upon the obligation set forth in the contract bonds, and the Design-Builder and the Surety shall remain bound thereon unto the Department until the work set forth in the contract has been completed and accepted by the Department and all obligations of the Design-Builder and the Surety arising under the contract and contract bond have been discharged.

(G) Provision Not Exclusive:

The provisions shall be in addition to, and not in place of, any other provisions relating to default, breach of contract, and sanctions to be imposed in connection therewith appearing in the contract.

108-10 CONTRACT TIME; INTERMEDIATE CONTRACT TIME.

(A) General:

The contract time will be as defined in Article 101-24. No extensions to the completion date will be authorized except as allowed by this article. No modifications in the date of availability will be made for any reason whatsoever.

Intermediate contract time, as defined in Articles 101-47 and 101-48, will be that as allowed in the special provisions to complete a part, portion, or phase of the total work covered in the contract. Intermediate completion dates and intermediate completion times set forth in the special provisions may be extended on the same basis as completion dates and as described in this article.

When the liquidated damages stipulated in the project special provisions are to be on an hourly basis, extensions as described in this article will be considered on an hourly basis.

(B) Completion Date, Intermediate Completion Date, and Intermediate Completion Time Extensions:

No extension of the completion date, intermediate completion date, or intermediate completion time will be allowed for any reason except as provided for below:

1. If supplemental agreements covering the performance of extra work include provisions for an extension of the completion date, intermediate completion date, or intermediate

completion time, and the final dollar value of the extra work exceeds the estimated dollar value, the number of days or the number of hours by which the completion date, intermediate completion date, or intermediate completion time was extended will be increased by the percentage which the final dollar value exceeds the estimated value.

2. If the Design-Builder's current controlling operation(s) are delayed by circumstances originating from work required under the contract and beyond his control and without his fault or negligence, he may, at any time prior to the final payment make a written request to the Engineer for an extension of the completion date, intermediate completion date, or intermediate completion time. This request shall include: (a) the circumstances resulting in the alleged delay and documentation of said circumstances as may be required by the Engineer, (b) the controlling operation(s) alleged to have been delayed, (c) the calendar dates or calendar dates and times on which the controlling operation(s) were delayed and (d) the number of calendar days or hours by which he is requesting the completion date, intermediate completion date, or intermediate completion time to be extended.

If the Engineer determines that the controlling operation(s) were delayed because of circumstances beyond the control of and without the fault or negligence of the Design-Builder, and that the Design-Builder has pursued the work in accordance with Article 108-1, he will extend the completion date, intermediate completion date, or intermediate completion time unless otherwise precluded by other provisions of the contract. No extension of the completion date, intermediate completion date, or intermediate completion time will be allowed for delays caused by restrictions, limitations or provisions contained in the contract.

3. If changes in the work from that originally contemplated in the Design-Build Package are ordered by the Engineer and these changes result in additional work and/or extra work, the Engineer will allow an extension in the completion date, intermediate completion date, or intermediate completion time as he may deem warranted by such changes. It is, however, the Design-Builder's responsibility to show just cause for an extension in the completion date, intermediate completion date, or intermediate completion time due to the aforesaid conditions.

Submit all requests for extensions of Contract time in writing. Only delays to activities which affect the Contract completion date will be considered for an extension of contract time. No time extensions will be granted until a delay occurs which impacts the project's critical path, consumes all available float, and extends the work beyond the contract completion date. Include in the request a written narrative describing the events which would require an extension of contract time.

Any extension to the Contract completion date will be based on the number of calendar days the Contract completion date is impacted as determined by the Engineer's analysis.

The Design-Builder's plea that insufficient contract time (days), intermediate contract time (days), or intermediate contract time (hours) was specified in the contract will not be considered

as a valid reason for an extension in the completion date, intermediate completion date, or intermediate completion time.

108-11 LIQUIDATED DAMAGES.

It is mutually recognized that time is an essential element of the contract, and that delay in completing the work will result in damages due to public inconvenience, obstruction to traffic, interference with business, and the increasing of engineering and administrative costs to the Department. It is therefore agreed that in view of the difficulty of making a precise determination of such damages, a sum of money in the amount stipulated in the special provisions will be charged against the Design-Builder for each calendar day, each hour, or portion thereof that the work, or any portion of the work as described in the special provisions, remains uncompleted after the expiration of the completion date, intermediate completion date, or intermediate completion time shown in the special provisions, not as a penalty but as liquidated damages.

Should the Design-Builder or, in case of default, the Surety fail to complete the work or any portion of the work by any of the applicable completion dates, intermediate completion dates, or intermediate completion times shown in the special provisions, a deduction of the amount stipulated in the special provisions as liquidated damages will be made for each and every calendar day, for each and every hour, or portion thereof that the work or any portion of the work remains uncompleted after the expiration of any completion date, intermediate completion date, or intermediate completion time applicable to the uncompleted work. This amount will be deducted from any money due the Design-Builder or his Surety under the contract, and the Design-Builder and his Surety will be liable for any liquidated damages in excess of the amount due.

In the event that the special provisions establish one or more intermediate completion dates and/or one or more intermediate completion times in addition to the completion date, each of the liquidated damages stipulated will be considered to be cumulative to any other liquidated damages stipulated.

In case of default of the contract and the completion of the work by the Department, the Design-Builder and his Surety will be liable for the liquidated damages under the contract, but no liquidated damages will be chargeable for any delay in the final completion of the work by the Department due to any action, negligence, omission, or delay of the Department.

In any suit for the collection of or involving the assessment of liquidated damages, the reasonableness of the amount stipulated in the contract will be presumed. The liquidated damages referred to herein are intended to be and are cumulative, and will be in addition to every other remedy now or hereafter enforceable at law, in equity, by statute, or under the contract.

Permitting the Design-Builder to continue and finish the work or any part thereof after the expiration of the completion date, intermediate completion date, or intermediate completion time shall in no way operate as a waiver on the part of the Department of any of its rights under this contract.

108-12 EXTENSION OF CONTRACT TIME AND APPORTIONMENT OF LIQUIDATED DAMAGES.

It is the intent of Articles 108-10 and 108-11 of these specifications that when a contract is not completed by the completion date, intermediate completion date, or intermediate completion time the Design-Builder shall be entitled to an extension of the completion date, intermediate completion date, or intermediate completion time and apportionment and remittance of liquidated damages to the extent that the failure to complete was due to the conditions set forth in Article 108-10. The Design-Builder, however, shall be entitled to an extension of the completion date, intermediate completion date, or intermediate completion time, or an apportionment and remittance of liquidated damages only to the extent and in the proportion that such delays were caused by the conditions set forth in Article 108-10, and it is understood that any extension granted shall not operate to waive any liquidated damages or any claim which the Department has or may have against the Design-Builder by reason of failure of the Design-Builder to complete the said contract by the completion date, intermediate completion date, or intermediate completion time specified therein or as revised by authorized extensions.

108-13 TERMINATION OF CONTRACT.

The Board may terminate the contract in accordance with the following provisions:

1. Consideration will be given to termination of the contract if any of the following circumstances exist:
 - a. If it is impossible for the Design-Builder to obtain critical materials for completion of the contract within a practical time limit, or
 - b. If it is impossible for the Design-Builder to complete the work in accordance with the contract by reason of unanticipated conditions at the site, including slides and unstable subsoil, without a major change in the design of the project and the Design-Builder will be unduly delayed in completing the project by reason of such unanticipated conditions and changes in design, or
 - c. If the Design-Builder is prevented from proceeding with the contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense, or
 - d. If the Design-Builder is prevented from proceeding with the work required by the contract as a direct result of a restraining order, or other court order, or by reason of a permit requirement, and the Design-Builder will be unduly delayed in completing the project by reason of such order or requirement, or
 - e. If the Design-Builder is prevented from proceeding with the work due to the unavailability of the site.
2. The Design-Builder shall determine that the circumstances in item 1 exist and are beyond his control, and shall notify the Department in writing of his determination and include adequate documentation of these circumstances along with such notification.
3. The Contract will be terminated under this article if:
 - a. Request by Design-Builder:

- i. The Board concurs in the determination by the Design-Builder of the circumstances or makes an independent determination that such circumstances hereinabove indicated exist, and
 - ii. The Board determines that such circumstances are beyond the control of the Design-Builder, and the Design-Builder was not at fault in creating the circumstances, and
 - iii. The Board determines that a termination of the contract is in the best public interest, or
 - b. Authority of the Board:
The Board determines that a termination of the contract is in the best public interest.
4. The Design-Builder will be notified in writing by the State Highway Administrator of the action of the Board.
5. After a contract is terminated in accordance with this termination provision, the following provisions shall be applicable:
- a. When the contract is terminated before completion of all items of work in the contract, payment will be made for the actual number of acceptably completed items of work or acceptably completed portions thereof at the contract unit or lump sum prices. When the contract is terminated before completion of all items of work in the contract and items of work are partially completed or not begun, payment will be made in accordance with Article 104-6.
 - b. Upon request from the Design-Builder, materials meeting the requirements of the contract which were to have been incorporated into the work or were to remain the property of the Department but are not used in the work will be paid for in accordance with Article 109-6.
 - c. No claim for loss of anticipated profits will be considered and no payment will be made for loss of anticipated profits.
 - d. Termination of a contract shall not relieve the Design-Builder of his responsibilities for any completed portion of the work nor shall it relieve his Surety, of its obligation for and concerning any just claims arising out of the work performed.

108-14 TERMINATION OF CONTRACTOR'S RESPONSIBILITY.

After the project has been completed and accepted, as provided for in Article 105-17, the Design-Builder's responsibility will cease except as provided in Article 107-21 and as set forth in his contract bonds.

SECTION 109 MEASUREMENT AND PAYMENT

109-1 MEASUREMENT OF QUANTITIES.

All work completed under the contract will be measured by the Engineer according to United States standard measures unless otherwise stated in the contract.

The method of measurement and computations used in the determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to accepted engineering practice.

The terms "gage" and "thickness", when used in connection with the measurement of plates, sheets, and steel wire, shall be applied as follows:

Uncoated Steel Sheets and Light Plates	United States Standard Gage
Galvanized Sheets	AASHTO M218 or M167
Aluminum Sheets	AASHTO M196 or M197
Steel Wire	AASHTO M32

The term ton will mean short ton consisting of 2,000 pounds avoirdupois.

Cement will be measured by the barrel unless otherwise indicated elsewhere in the Specifications. The term barrel will mean 376 pounds of cement.

Trucks used to haul material being paid for by weight will be either weighed empty prior to each loading or weighed empty on a daily basis. When trucks are weighed empty on a daily basis, each truck shall be weighed prior to hauling its first load of the day and shall bear a legible identification mark.

Where aggregates that are to be paid for by weight have been stockpiled after being produced, measurement for purposes of payment will be made after the aggregates have been loaded on trucks for direct delivery to the project.

When a complete structure or structural unit, as may be indicated by the unit "lump sum" or "each", is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When standard manufactured items are specified, and these items are identified by gage, unit weight, section dimensions, and/or other dimensions, such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

109-2 SCOPE OF PAYMENT.

The Design-Builder shall receive and accept compensation provided for in the contract as full payment for furnishing all materials and performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of Article 107-21. Payment to the Design-Builder will be made only for the work completed and accepted in accordance with the terms of the contract.

If the "Basis of Payment" or "Compensation" clause in the specifications relating to any unit price or lump sum price in the bid schedule requires that the said unit price or lump sum price cover and be considered compensation for certain work or material essential to the item, this same work or material will not also be measured or paid for under any other pay item which may appear elsewhere in the specifications.

109-3 FORCE ACCOUNT WORK.

(A) Design:

The actual costs for labor will be paid.

(B) Construction:

All force account work shall be performed as directed by the Engineer including the numbers and types of equipment, the numbers and classifications of labor and foremen, and material requirements.

All work to be paid for on a force account basis will be paid for in the following manner:

1. Labor. For all authorized labor and foremen in direct charge of the specific operations, the Design-Builder will receive the rate of base wages (or scale) actually being paid by the Design-Builder for each hour that the labor and foremen are actually engaged in the work. Prior to beginning the work the Design-Builder shall submit in writing for the Engineer's approval a list of all wage rates applicable to the work. Approval will not be granted where these wage rates are not actually representative of wages being paid elsewhere on the project for comparable classes of labor performing similar work. Payment for overtime will be allowed when approved by the Engineer prior to performing the work. An amount equal to 35 percent of the total base wages paid for labor and foremen will be added to the total base wages paid to the Design-Builder.

The percentage additive will be full compensation for overhead, profit, benefits, and contingencies.

2. Bond, Insurance, and Tax. For property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions, bond premiums, and social security taxes on the force account work, the Design-Builder will receive the actual cost to which cost 6 percent will be added. The Design-Builder shall furnish satisfactory evidence to the Engineer of the rate or rates paid for such bond, insurance, and tax.

An annualized composite percentage of the direct cost for labor and foremen may be used to determine the cost for bond, insurance, and tax to which cost 6 percent will be added. The Design-Builder shall furnish satisfactory evidence to the Engineer of the annualized composite percentage for the bond, insurance, and tax.

The percentage additive will be full compensation for overhead, profit, and contingencies.

3. Materials. For materials authorized and accepted by the Engineer and used, the Design-Builder will receive the actual cost of such materials, including transportation charges paid by him (exclusive of equipment rentals as hereinafter set forth), to which cost 15 percent will be added. The Design-Builder shall furnish records to the Engineer to verify the quantities of materials used in the work, prices of the materials, and costs of transportation for the materials.

If materials used in the force account work are not specifically purchased for such work but are taken from the Design-Builder's stock, the Design-Builder shall furnish an affidavit certifying that such materials were taken from his stock, the quantity was actually used in the work, and the price and transportation cost claimed represent the actual cost to the Design-Builder.

The percentage additive will be full compensation for overhead, profit, and contingencies.

4. Equipment. For all equipment authorized by the Engineer to be used on the force account work the Design-Builder will receive rental payment.

Hourly rental rates paid for equipment in use which is Design-Builder owned or rented from another Contractor will not exceed 1/176th of the monthly rate listed in the "Rental Rate Blue Book for Construction Equipment", as published by Dataquest, Incorporated, which is current at the time the force account work is performed.

In determining the hourly rate, the regional adjustment factor and the rate adjustment factor for equipment age, as set forth in the current Blue Book, will both be applied to the basic rate. An additive payment equal to 70 percent of the Blue Book estimated operating cost per hour will also be paid for the time equipment is in use. This additive payment will be full compensation for fuel, lubricants, repairs, servicing (greasing, fueling, and oiling), small tools, and other incidentals.

If rental rates for the equipment actually being used in the work are not listed in the Blue Book, the Design-Builder will receive the prevailing rental rates being paid for such equipment in the area where the project is located. An additive payment equal to 15 percent of the prevailing rental rate will also be paid for the time equipment is in use. This additive payment will be full compensation for fuel, lubricants, repairs, servicing (greasing, fueling, and oiling), small tools, and other incidentals.

Hourly rental rates for equipment held in ready as directed by the Engineer will be 50 percent of the rate paid for equipment in use. An additive payment will not be made for equipment held in ready. When equipment is in use less than 40 hours for any given week and is held in ready as directed by the Engineer, payment for held in ready time will be allowed for up to 40 hours, less time in use. When payment is made for equipment held in ready as directed by the Engineer, the payment for held in ready time will be allowed for up to 8 hours in a day less time in use.

Hourly rental rates for idle equipment held in ready in accordance with Article 104-4 will be 50 percent of the rate paid for equipment in use. Hourly rental rates for idle equipment held in ready in accordance with Article 104-4 which is rented from a commercial rental agency will be paid for in accordance with the invoice rate for the equipment. An additive payment will not be made for idle equipment. When equipment is in use less than 40 hours for any given week and is held in ready as idle equipment in accordance with Article 104-4, payment for idle equipment time will be allowed for up to 40 hours, less time in use. When payment is made for idle equipment held in ready in accordance with Article 104-4, the payment for idle equipment time held in ready will be allowed for up to 8 hours in a day less time in use.

In the event the Design-Builder does not possess or have readily available such equipment necessary for the performance of the work and such equipment is rented from

a commercial rental agency, the Design-Builder will receive payment based on the approved invoice rate for the equipment. An additive payment equal to 15 percent of the calculated hourly invoice rate will also be paid for the time equipment is in use. This additive payment will be full compensation for fuel, lubricants, repairs, servicing (greasing, fueling and oiling), small tools, and other incidentals. The commercial rental agency cannot be the Design-Builder or an affiliate of the Design-Builder.

No compensation will be made for the use of equipment not authorized by the Engineer.

The Design-Builder will be reimbursed for the actual transportation costs for equipment which the Design-Builder is directed to furnish. Such payment will be limited to transportation costs from the nearest source of available equipment. If equipment is not returned to the point of origin, but is transported to another location, transportation costs will not exceed the cost of return to the point of origin. Rental for such equipment will not be paid when the equipment is being transported. The Design-Builder shall furnish records to the Engineer to verify the actual transportation costs for equipment.

The Design-Builder shall provide to the Engineer for approval a listing of all equipment and attachments to be utilized in the prosecution of the work. The list shall include the manufacturer's name, type, model, serial number, and year of manufacture. The list shall also include the invoice rate for equipment rented from a commercial rental agency. It shall be the Design-Builder's responsibility to verify the age of the equipment in a manner acceptable to the Engineer. Where such verification is not available, the rate adjustment factor used will be for the oldest equipment listed in the Blue Book.

The above prices and payments will be full compensation for fuel, lubricants, cutting edges, all repairs, and all other operating and maintenance costs other than operator's wages.

5. Miscellaneous. No additional allowance will be made for general superintendence, the use of manually powered tools, or other costs for which no specific allowance is herein provided.
6. Subcontracting. For administrative costs of the Design-Builder in connection with approved subcontract work, the Design-Builder will receive an amount in accordance with the rate schedule shown below of the total cost of such subcontracted work. The total cost will include labor; bond, insurance, and tax; materials; and equipment costs incurred by the subcontractor and computed in accordance with Items 1, 2, 3, and 4 above.

<u>Total Cost of Subcontract Work</u>	<u>Rate Schedule</u>
\$0 - \$10,000	10%
Above \$10,000	\$1,000 + 5% Above \$10,000

7. General. The Engineer will maintain the payment records of work performed on a force account basis. The Design-Builder shall compare records of work with the Engineer at the end of each day on which such work is in progress.

Any contention the Design-Builder may have for an extension in the completion date, intermediate completion date, or intermediate completion time, due to performance of force account work will be considered as provided in Article 108-10.

109-4 PARTIAL PAYMENTS.

(A) General:

Partial payments will be based upon progress estimates prepared by the Engineer at least once each month on the date established by the Engineer. Partial payments may be made twice each month if in the judgment of the Engineer the amount of work performed is sufficient to warrant such payment. No partial payment will be made when the total value of work performed since the last partial payment amounts to less than \$10,000.00. Partial payments will be approximate only and will be subject to correction in the final estimate and payment.

Partial payments for the lump sum design-build price shall be based on a Schedule of Payments submitted by the successful Design-Build proposer and approved by the Engineer. The Schedule of Payments shall be submitted not less than 30 calendar days after the date of award. Each item on the Schedule of Payments shall be assigned a cost and quantity and shall be identified as an activity on the project schedule. A revised Schedule of Payments shall be submitted with each update of the CPM of Record as described in Article 108-2 or when requested by the Engineer. The Engineer will withhold an amount sufficient to cover anticipated liquidated damages as determined by the Engineer.

109-5 PAYMENT FOR MATERIAL TO BE USED IN THE WORK.

No partial payments will be made for materials to be incorporated in the work unless elsewhere provided.

109-6 PAYMENT FOR LEFTOVER MATERIALS.

Payment will be made to the Design-Builder for materials meeting the requirements of the contract which were to have been permanently incorporated into the work or were to remain the property of the Department but due to revisions or elimination of items of work by the Engineer, due to changes in the scope, or due to termination of the contract are not used in the work. The Design-Builder upon request will be reimbursed for the verified actual cost of such material delivered to a site designated by the Engineer, including any handling charges less any discount, but in no event shall payment exceed that which would have been made at the contract unit or lump sum price for the completed work.

The Design-Builder shall furnish invoices and cost records to the Engineer to verify the actual cost of materials, handling charges, discounts which were taken, and transportation charges. No percentage additive will be added to the verified cost of such material.

No payment will be made for loss of anticipated profits and no other payment will be made for leftover materials except as listed above.

109-7 COMPENSATION PAID AT CONTRACT PRICES.

Except as provided for by this article, payment for work performed will be made at the contract unit price or the contract lump sum price, as the case may be. Payment shall be made at the adjusted contract unit or lump sum price, as applicable, when a price adjustment or pay factor is provided for by the Specifications or as determined by the Engineer in accordance with Article 105-3. The Design-Builder shall not be paid for any work performed for which there is not a contract price, nor shall the Design-Builder receive additional compensation over and above the contract price for work performed or for extra work performed, except for work performed pursuant to an executed supplemental agreement or work performed in accordance with the applicable provisions of Section 104.

109-8 FUEL PRICE ADJUSTMENTS.

No fuel price adjustments will be made.

109-9 FINAL PAYMENT.

The Engineer will notify the Design-Builder giving the apparent liquidated damages, if any assessed. After the Design-Builder submits the documents listed in Article 109-10, the entire sum found to be due after deducting all previous payments and all amounts to be retained or deducted under the provisions of the contract will be paid the Design-Builder.

109-10 DOCUMENTS REQUIRED FOR THE PROCESSING OF THE FINAL ESTIMATE.

Prior to the processing of the final estimate, the following documents shall have been submitted to and accepted by the Engineer.

1. Statement of Consent of Surety on the contract bonds for payment of money due the Design-Builder.
2. Affidavit of the Design-Builder that all obligations and debts arising out of the construction have been satisfied, or affidavit which shall include a list of obligations not satisfied.
3. Written notice that the Design-Builder has no request for any extension in the completion date or any adjustment in compensation from that shown in the final estimate or in lieu thereof written notice presenting all request for adjustment of the final estimate setting forth full justification for such requests.
4. Any other documents that are required by the contract such as completed Form PR-47 and all reports, statements, and other information necessary for compliance with applicable labor regulations of the Federal Highway Administration.
5. As-constructed plans.
6. Final Material Certificate

Submission of false information in the documents required by this section shall be a basis for disqualifying the Design-Builder from further bidding in accordance with Article 102-16.

109-11 INTEREST ON FINAL PAYMENT.

Should final payment on a project not be made within 120 calendar days after the project final acceptance date, interest, at the average rate earned by the State Treasurer on the investment within the State's Short Term Fixed Income Investment Fund during the month preceding the date interest becomes payable, will be paid the Design-Builder on the final payment for the period beginning on the 121st day after final acceptance and extending to the date the final estimate is paid, provided that the documents required by Article 109-10 have been submitted within 30 days of the mailing of the notification outlined in Article 109-9. In the event the Design-Builder fails to submit the required documents within the stipulated 30 day period, and the final estimate is not paid until 120 calendar days following final acceptance of the project, the number of days on which interest accrues will be reduced by the number of days in excess of 30 that the Design-Builder requires to submit the document(s).

SECTION 150

MAINTENANCE OF TRAFFIC

150-1 GENERAL.

The Design-Builder will be required to maintain traffic within the limits of the project, including all existing roadways which cross or intersect the project, unless otherwise provided in the contract or approved by the Engineer. Traffic shall be maintained from the time the Design-Builder begins work on the project site until acceptance of the project, including any periods during which the Design-Builder's operations are suspended, unless otherwise provided for in the contract or approved by the Engineer. The Design-Builder shall conduct his work in a safe manner which will create a minimum amount of inconvenience to traffic.

The Design-Builder shall be responsible for maintaining in a safe, passable, and convenient condition, such part or parts of existing roads as are being used by him to maintain traffic within the limits of the project from the time the Design-Builder begins work on the project until acceptance of the project. As an exception to the above, the Department will be responsible for the removal of ice and snow from all portions of the project open to traffic.

Whenever it is necessary to utilize traffic control devices as shown in the contract, as determined by the Engineer, or in order to conform to the provisions of this section, the work of furnishing, erecting, operating, maintaining, covering, relocating, and removing traffic control devices shall be in accordance with the provisions of Division 11 & 12.

ITEMIZED PROPOSAL FOR CONTRACT NO. C200725

April 03, 2003 9:55 am
County: Wake

Page 1 of 1

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
<u>ROADWAY ITEMS</u>						
0001	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM DESIGN, CONSTRUCTION & INSPEC TION	Lump Sum	L.S.	

0955/Apr03/Q1.0/D 900000 /E 1

Total Amount Of Bid For Entire Project :

12/19/89

***AWARD LIMITS ON MULTIPLE PROJECTS**

It is the desire of the Bidder to be awarded contracts, the value of

which will not exceed a total of \$_____, for those projects indicated below on which bids are being opened on the same date as shown in the Proposal Form. Individual projects shall be indicated by placing the project number and county in the appropriate place below. Projects not selected will not be subject to an award limit.

_____ (Project Number)	_____ (County)
_____ (Project Number)	_____ (County)
_____ (Project Number)	_____ (County)
_____ (Project Number)	_____ (County)

*If a Bidder desires to limit the total amount of work awarded to him in this letting, he shall state such limit in the space provided above in the second line of this form.

It is agreed that in the event that I am (we are) the low Bidder(s) on indicated projects, the total value of which is more that the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated which have a total value not exceeding the award limit and which will result in the lowest total bids to the Department of Transportation.

**Signature of Authorized Person

**Only those persons authorized to sign bids under the provisions of Article 102-8, Item 7, shall be authorized to sign this form.

Wake County

LISTING OF MB & WB SUBCONTRACTORS

Sheet _____ of _____

[illegible]

Wake County

Sheet _____ of _____

FIRM NAME AND ADDRESS	MB OR WB	ITEM NO.	ITEM DESCRIPTION	AGREED UPON UNIT PRICE (*)	DOLLAR VOLUME OF ITEM
CONTRACT NO.		COUNTY		FIRM	

CONTRACT No.:C200725
WAKE

LISTING OF MB & WB SUBCONTRACTORS

Sheet _____ of _____

FIRM NAME AND ADDRESS	MB OR WB	ITEM NO.	ITEM DESCRIPTION	(*) AGREED UPON UNIT PRICE	DOLLAR VOLUME OF ITEM

CONTRACT NO. _____ **COUNTY** _____ **FIRM** _____

CONTRACT No.:C200725
WAKE

LISTING OF MB & WB SUBCONTRACTORS

Sheet _____ of _____

[illegible]

COST OF CONSTRUCTION WORK ONLY \$

(*) The Dollar Volume Shown in this Column
 Shall be Actual Price Agreed Upon by the Prime
 Contractor and the MB and/or WB Subcontractor, and
 These Prices will be Used to Determine the Percentage of
 the MB and/or WB Participation in the Contract.

Dollar Volume of MB Subcontractor.....\$	_____
MB Percentage of Total Contract Bid Price.....%	_____
Dollar Volume of WB Subcontractor\$	_____
WB Percentage of Total Contract Bid Price.....%	_____

12/21/99

EXECUTION OF PRICE PROPOSAL, NONCOLLUSION AFFIDAVIT, AND DEBARMENT CERTIFICATION

The person executing the Price Proposal, on behalf of the Design-Builder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the Design-Builder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Price Proposal, and that the Design-Builder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this Price Proposal in the proper manner also constitutes the Design-Builder's certification of "Status" under penalty of perjury under the laws of the United States in accordance with the Debarment Certification included elsewhere in the proposal form, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF DESIGN-BUILDER

(If a corporation uses this sheet)

(Print full name of corporation)

(Address as Prequalified)

Attest _____
(Secretary) (Assistant Secretary)
Delete inappropriate title

By _____
(President) (Vice President)
(Asst. Vice President)
Delete inappropriate title

Print Signer's Name

Print Signer's Name

CORPORATE SEAL

NOTE - AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____, 20____.

(Signature of Notary Public)

NOTARY SEAL:

of _____ County.

State of _____.

My Commission Expires: _____

Signature Sheet 1 (Price Proposal) - Corporation

12/21/99

EXECUTION OF PRICE PROPOSAL, NONCOLLUSION AFFIDAVIT, AND DEBARMENT CERTIFICATION

The person executing the Price Proposal, on behalf of the Design-Builder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the Design-Builder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Price Proposal, and that the Design-Builder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this Price Proposal in the proper manner also constitutes the Design-Builder's certification of "Status" under penalty of perjury under the laws of the United States in accordance with the Debarment Certification included elsewhere in the proposal form, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF DESIGN-BUILDER

(If a joint venture, use this sheet)

Instructions to Bidders: On Line (1), print the name of each contractor. On Line (2), print the name of one of the joint venturers and execute below in the appropriate manner and furnish in the following lines all information required by Article 102-8 of the Specifications. On Line (3), print the name of the other joint venturer and execute below in the appropriate manner and furnish all information required by said article of the Specifications. For correct form of execution and information required for execution of this sheet by an individual, see Signature Sheets 3 and 4; for a corporation, see Signature Sheet 1; and for a partnership, see Signature Sheet 5.

(1) _____ and _____
A Joint Venture

(2) _____ (Seal)
(Name of Design-Builder)

Witness or Attest

By _____

Print Signer's Name

Print Signer's Name

If a corporation, affix corporate seal:

and

(3) _____ (Seal)
(Name of Design-Builder)

(Address as Prequalified)

Witness or Attest

By _____

Print Signer's Name

Print Signer's Name

If a corporation, affix corporate seal:

NOTE - AFFIDAVIT MUST BE NOTARIZED For Line (2) NOTE - AFFIDAVIT MUST BE NOTARIZED For Line (3)

Subscribed and sworn to before me

Subscribed and sworn to before me

this the ____ day of _____, 20____.

this the ____ day of _____, 20____.

(Signature of Notary Public & Seal)

(Signature of Notary Public & Seal)

of _____ County.

of _____ County.

State of _____.

State of _____.

My Commission Expires:_____.

My Commission Expires_____.

Signature Sheet 2 (Price Proposal) - Joint Venture

12/21/99

EXECUTION OF PRICE PROPOSAL, NONCOLLUSION AFFIDAVIT, AND DEBARMENT CERTIFICATION

The person executing the Price Proposal, on behalf of the Design-Builder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the Design-Builder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Price Proposal, and that the Design-Builder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this Price Proposal in the proper manner also constitutes the Design-Builder's certification of "Status" under penalty of perjury under the laws of the United States in accordance with the Debarment Certification included elsewhere in the proposal form, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF DESIGN-BUILDER

(If an individual doing business under a
firm name, use this sheet)

Name of Design-Builder _____ trading
(Print individual name)

Witness

Print signer's name

and doing business as _____
(Print firm name)

(Address as Prequalified)

Signature of Design-Builder _____
(Individually)

Print signer's name

NOTE - AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____, 20____.

(Signature of Notary Public)

of _____ County.

State of _____.

My Commission Expires: _____

Signature Sheet 3 (Price Proposal) - INDIVIDUAL WITH FIRM NAME

12/21/99

EXECUTION OF PRICE PROPOSAL, NONCOLLUSION AFFIDAVIT, AND DEBARMENT CERTIFICATION

The person executing the Price Proposal, on behalf of the Design-Builder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the Design-Builder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Price Proposal, and that the Design-Builder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this Price Proposal in the proper manner also constitutes the Design-Builder's certification of "Status" under penalty of perjury under the laws of the United States in accordance with the Debarment Certification included elsewhere in the proposal form, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF DESIGN-BUILDER

(If an individual doing business in
his own name, use this sheet)

Name of Design-Builder _____
(Print)

(Address as Prequalified)

Witness

Signature of Design-Builder _____
(Individually)

Print Signer's Name

Print Signer's Name

NOTE - AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

____ day of _____, 20____.

(Signature of Notary Public)

of _____ County.

State of _____.

My Commission Expires: _____

12/21/99

EXECUTION OF PRICE PROPOSAL, NONCOLLUSION AFFIDAVIT, AND DEBARMENT CERTIFICATION

The person executing the Price Proposal, on behalf of the Design-Builder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the Design-Builder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Price Proposal, and that the Design-Builder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this Price Proposal in the proper manner also constitutes the Design-Builder's certification of "Status" under penalty of perjury under the laws of the United States in accordance with the Debarment Certification included elsewhere in the proposal form, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF DESIGN-BUILDER

(If a partnership, use this sheet)

(Print Name of Partnership)_____
(Address as Prequalified)_____
Witness

By _____

Partner_____
Print Signer's Name_____
Print Signer's NameNOTE - AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

____ day of _____, 20____.

(Signature of Notary Public)

of _____ County.

State of _____.

My Commission Expires:_____

12/21/99

EXECUTION OF PRICE PROPOSAL, NONCOLLUSION AFFIDAVIT, AND DEBARMENT CERTIFICATION

The person executing the Price Proposal, on behalf of the Design-Builder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the Design-Builder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Price Proposal, and that the Design-Builder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this Price Proposal in the proper manner also constitutes the Design-Builder's certification of "Status" under penalty of perjury under the laws of the United States in accordance with the Debarment Certification included elsewhere in the proposal form, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

SIGNATURE OF DESIGN-BUILDER

(Limited Liability Company, use this sheet)

Name of Design-Builder _____
(Print firm name)

(Address as Prequalified)

Signature of Manager _____
(Individually)

Print Signer's Name

NOTE - AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

____ day of _____, 20____.

NOTARY SEAL

(Signature of Notary Public)

of _____ County.

State of _____.

My Commission Expires: _____

CONTRACT No.:C200725
WAKE

2/16/99

Contract No.:C200725

County: WAKE

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION

Contract Officer

Date

Execution of Contract and Bonds
Approved as to Form:

Attorney General

Signature Sheet 7 (Bid - Acceptance by Department)

DEBARMENT CERTIFICATION OF BIDDERS

Instructions & conditions for certification

1. By signing and submitting this proposal, the Design-Builder is providing the certification set out below.
2. The inability of a Design-Builder to provide the certification required below will not necessarily result in denial of participation in this contract. If the certification is not provided, the Design-Builder must submit an explanation (exception) of why it cannot provide the certification set out below. The certification or explanation (exception) will be considered in connection with the Department's determination whether to award the contract. However, failure of the prospective Design-Builder to furnish a certification or an explanation (exception) may be grounds for rejection of the Price Proposal.
3. The certification in this provision is a material representation of fact upon which reliance is placed when the Department determines whether or not to award the contract. If it is later determined that the Design-Builder knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Department may terminate this contract for cause of default.
4. The prospective Design-Builder shall provide immediate written notice to the Department if at any time the Design-Builder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12540. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
6. The Design-Builder agrees by submitting this Price Proposal that, should the contract be awarded, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this contract, unless authorized by the Department.
7. The prospective Design-Builder further agrees by submitting this proposal that it will include the Federal-Aid Provision titled "Required Contract Provisions Federal-Aid Construction Contract" (Form FHWA PR 1273) provided by the Department, without subsequent modification, in all lower tier covered transactions.

8. The prospective Design-Builder may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals.
9. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
10. Except for transactions authorized under paragraph 6 of these instructions, if the successful Design-Builder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the Department may terminate this transaction for cause of default.

DEBARMENT CERTIFICATION

The Design-Builder certifies to the best of its knowledge and belief, that it and its principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Where the prospective Design-Builder is unable to certify to any of the statements in this certification, it shall attach an explanation to this proposal.

IF AN EXPLANATION, AS PROVIDED IN THE ABOVE DEBARMENT CERTIFICATION, HAS BEEN ATTACHED TO THE PROPOSAL, PLEASE CHECK THE BOX SHOWN BELOW:

☐ An explanation has been attached to the proposal.

